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ABSTRACT

This collection of articles by undergraduate and graduate student Gammans includes the following: "Health Problems of Adolescents in Juvenile Detention Centers" (Anna M. Huber); "A Qualitative Study of the Motivations and Concerns of Sexual Diversity Panel Participants" (Kandice M. Johnson); "High School Freshmen Parenting Attitudes Before and After 'Baby Think it Over'" (Nancy L. Koontz); "Stress and Coping Mechanisms among Emergency Medical Technicians and Paramedics" (Angela Kay Miller); "Academic Stress of International Students: Comparison of Student and Faculty Perceptions" (Tony Russo and Sarah West); "Osteoporosis Prevention: Importance During the 'Bone Forming' Years" (Patricia A. Sargeant); "Potential Contributions of the Elementary School Principal to School Health Instruction" (Denise M. Seabert); "Mexican-Americans and Diabetes: Factors Influencing the Prevention of Diabetes According to the PRECEDE Model" (Tracey M. Smith); "Tobacco Policy in the United States: Past and Present Directions" (Susan S. Thomas); "Creatine: An Emerging Concern Regarding Sport Supplements" (Scott W. Vandiver); and "Early Childhood Caries Prevention Programs: Definitions, Recommendations, and Barriers" (Holly R. Wilson). (SM)

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Series

THE STUDENT ISSUE

ORIGINAL ARTICLES BY STUDENT GAMMANS 1999 EDITION

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Foreword

Developing effective publication skills is essential to professional development. Motivation for writing, interest in particular subject areas and strategies to improve publication are vital to productivity in this area of professional contribution. Having a successful publishing record requires starting early and writing often. Developing as a competent author, however, is a lifelong project.

Eta Sigma Gamma is exemplary in providing opportunities for Health Education students to publish in a competitive review process. Each year, the Student Issue of **The Health Education Monograph Series,** encourages graduate and undergraduate student Gammans throughout the country to submit their research papers for publication consideration. This issue is a reflection of the commendable work of student Gammans as authors.

The support of the faculty sponsors has been invaluable. From various ESG chapters, faculty sponsors have been working enthusiastically to assist and inspire students to make their papers publishable. Faculty sponsors not only provided technical input on the papers but also professional support to students during the review process. The role of the faculty sponsor's guidance and mentoring have been critical to the number of article submissions, quality of the papers, and positive publishing experience of the student Gammans.

This issue is complemented by the input of distinguished scholars who served on the editorial board. Their response to my invitation to serve as a reviewer was positive without hesitation. There was a surge of interest and support for contributing to this area of scholarly development of students. The reviewers' comments and criticism provided the authors with information and direction to improve their papers. Their promptness and attention to the deadlines were instrumental for timely completion of this issue.

The availability and assistance of Dr. Mohammad Torabi (editor) shed light throughout the process. In addition to his helpful information package at the beginning, every one of my questions were answered efficiently and effectively along the way. Additionally, at the national office of ESG, Jay Javed, Executive Secretary, was most helpful in assisting me with this project.

I appreciated the professional care and outstanding service exhibited by every individual involved in this task. The consequence has been a great sense of success and satisfaction for Health Education students. Congratulations to all students who submitted papers. Even if your paper was not accepted, you have gained a valuable experience which will enhance your productivity in future publications.

Behjat A. Sharif, Ph.D., CHES
Guest Editor
California State University at Los Angeles

Preface

On behalf of your National Executive Committee of **Eta Sigma Gamma (ESG)**, I would like to offer my sincere congratulations to all of the students who submitted research papers for publication consideration in this student issue of ***The Health Education Monograph Series***. This is a strong indication of our students' commitment to research. I would like to extend my genuine appreciation to Dr. Behjat Sharif for the excellent job he has done as our Guest Editor for this issue. Further, I wish to thank all faculty advisors who encouraged and worked with the students in the manuscript preparation. My sincere appreciation and gratitude are extended to those who assist in the production of ***The Health Education Monograph Series.*** A special thanks is also extended to Mr. Jay Javed, Executive Director of **ESG** for his general assistance. Certainly, I must thank the Department of Applied Health Science of Indiana University for the in-kind support provided for the publication of the **Monograph Series**.

I would like to invite all faculty to encourage students to submit research papers for the next student issue of ***The Health Education Monograph Series***. The deadline for submission is January 20, 2000. Our guest editor for the next student issue is Professor Jeffrey K.Clark, HSD; Email: 00jkclark@bsuvc.bsu.edu; Department of Physiology & Health Science, Ball State University, Muncie, Indiana 47306.

Finally, I would like to thank you for sharing your comments with me regarding the past **Monograph Series**. As always, I am eager to hear your critisism, comments, and suggestions relative to this publication. I do hope that you, as loyal members of this National Honorary, check your college/university libraries and make sure that they receive ***The Health Education Monograph Series***. If not, please request that they subscribe to these important publications. It is a privilege for me to serve **ESG** members and our profession.

I look forward to hearing from you.

Mohammad R. Torabi, PhD, MPH CHES
Editor, ***The Health Education Monograph Series***
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Health Problems of Adolescents in Juvenile Detention Centers

Anna M. Huber

Abstract

Adolescents in juvenile detention centers can experience a variety of health problems. These problems may pre-exist before the juvenile arrives in detention or occur during incarceration. Demographics and the risky lifestyle behaviors practiced by incarcerated adolescents may influence many disorders they experience later in life. Although some states offer comprehensive chronic disease clinics in combination with some health education, incarcerated adolescents continue to represent a high-risk underserved population for health educators to target. Health education presented in coordination with medical services and social counseling can become a long-term solution to many health problems. Upon a youth's release, knowledge gained while incarcerated may spread through the general population.

Introduction

Many adolescent health problems exist in juvenile detention centers (JDC's). Youth in confinement are at risk of many health problems because of their lifestyle outside of detention (Council on Scientific Affairs, 1990). Nearly half (47%) of detained youth are African American and 52% are 15-16 years of age (Parent, 1993; Parent et al., 1994). Many come from single parent homes, may be runaway or homeless, practice inadequate nutrition, have learning disabilities and/or educational deficiencies, and may be subject to acute stress from living in violent neighborhoods (Steiner, Garcia, and Matthews, 1997). These conditions can pre-dispose adolescents to earlier sexual activities, substance abuse, conduct disorders, and psychiatric and behavioral problems. In the general youth population, according to Kann and colleagues (1995), 69.5% of students grade 9-12 in a 1993 nationwide study had tried cigarette smoking. Additionally, 80.9% of those students had at least one drink of alcohol in their lifetime and 32.8% had used marijuana. In the same study Kann et. al. found 53% of all students had engaged in sexual intercourse during their lifetime. Black and Hispanic students were significantly more likely to have done so. This statistic is representative of the most disadvantaged communities and represents the majority in JDC's. During the past two decades, the adolescent population in the United States has declined, however, the number of juvenile cases handled in court has increased to over 1.5 million (Council on Scientific Affairs, 1990). Additionally, the decline in overall number of juveniles combined with an increase of juvenile delinquency still does not paint an accurate picture of adolescent incarceration. Approximately half of the youth that commit a crime and are processed by the police are released to their homes (Council on Scientific Affairs, 1990). The additional number of incarcerated adolescents, combined with the increase in chronic disease, has impacted the health services provided in JDC's. The State of Florida Department of Corrections (DOC) chronic disease clinics provides an interesting response to this challenge. This paper identifies the most common health problems of adolescents in JDC's and makes recommendations in areas where health education may intervene and prevent these problems from continuing.

Common Health Problems

Adolescent health problems in JDC's are categorized in two ways: those that exist **when** the juvenile is incarcerated and those that occur **during** incarceration. Because many delinquent youth practice risky behavior due to demographics or lifestyle, and usually lack prior health care services, adolescents in correctional institutions experience a higher rate of physical and emotional problems than non-institutionalized youths. For example, adolescents in juvenile detention spend less time in schools and have less knowledge on health issues in general. According to a study by Katz, Mills, Singh, and Best (1995), incarcerated delinquents tend to be slightly less informed about AIDS than public school students. In addition, they noted that adolescents who were relatively uninformed about AIDS tend to be most at risk for the disease. The most prevalent health problems that accompany adolescents into incarceration are substance abuse, sexually transmitted diseases, unplanned pregnancies, and psychiatric disorders (Council on Scientific Affairs, 1990). In a 1990 nationwide study, 20% of 88,106 adolescents admitted to a large urban detention center stated they had abused drugs. Of those, 37% showed abnormal liver function tests during the initial health assessment, suggesting chronic hepatitis. The use of alcohol was more widespread. In the same 10-year study, 32% of juvenile delinquents admitted committing their offense under the influence of alcohol. Ninety percent admitted using alcohol sometime in the past. The abuse of alcohol and other substances not only increase a youth's chance of unintentional injury and involvement in

crime or violence but also influences other risky behaviors such as unprotected sex, needle sharing, and physical fighting. Alcohol and drugs also may stunt the normal physiological development of teenagers leading to other chronic disorders.

Sexually transmitted diseases (STDs) are more common with incarcerated girls than delinquent boys and non-institutionalized youth (I. Rodriguez, personal communication, February 9, 1998). Over half of the girls incarcerated in detention centers in the United States complain of vaginal discharge (Morrison et al., 1995). In this study, vaginitis, gonorrhea, and chlamydia were the most common disorders. Because delinquent girls tend to become sexually active at an earlier age and are less likely to use condoms, compared to public school students, they are not only more at risk for STDs but also for unplanned pregnancies and the Human Immunodeficiency Virus (HIV) (Katz et. al., 1995). HIV is not reported as common in juvenile institutions. One reason is that HIV testing is not routinely conducted unless the youth requests it. However, based on lifestyle risk appraisals (Kann et. al. 1995), the high prevalence of STDs and substance abuse in adolescent delinquents, HIV presents a threat to this population. In addition, the high prevalence of AIDS related deaths of people in their twenties reminds us that HIV transmission took place in the teenage years. As mentioned earlier, Katz et. al. (1995) found incarcerated juveniles tended to be less informed about HIV than adolescents in public schools. Additionally, Lanier, Diclemente, and Horan (1991) state that even if high-risk youth have been flooded with high-quality HIV-prevention information, many incarcerated adolescents harbor a high level of "anti-authority" attitude. This can lead to rejection of the HIV information as well as failure to recognize their own personal risk for infection. The average 1996-97 prevalence of HIV in three state of Florida juvenile facilities, for example, increased to approximately 33 per 1000 detainees (State of Florida Corrections, 1998).

Dental problems also are found in a high proportion of incarcerated youths (Council on Scientific Affairs, 1990). Many of the problems (gum disease, dental caries, fractured and broken teeth) are indicative of a lack of previous care. State facilities offer varied dental services to these youth ranging from diagnostic and preventative care to restorative and periodontal units (State of Florida Corrections, 1998).

Incarcerated youth display a long history of physical and emotional trauma which are frequently a part of incarcerated youths' family socioeconomic status (SES), ethnicity, and lifestyle. They represent a direct link to various psychiatric disorders. Learning disabilities, depression, and post-traumatic stress disorder (PTSD) are significantly prevalent among incarcerated youth. According to Riggs, Baker, Mikulich, Young, and Crowley (1995), depressed boys had a tendency to abuse substances and were more likely to suffer from attention-deficit hyperactivity disorder (ADHD) and PTSD compared with non-depressed boys. Depressed boys also developed conduct disorder symptoms earlier than non-depressed boys. Depressed delinquents exhibited more serious drug and alcohol problems. The higher use of these substances was normally meant to alleviate negative self-images. Depression also can indicate suicidal behavior problems. Suicide represents a serious behavior problem in juvenile detention centers. In 1991, there were 4.6 suicidal behavior incidents per 100 confined juveniles (Parent et. al., 1994). Female delinquents suffer from suicidal behavior incidents at a much higher rate (Council on Scientific Affairs, 1990). Due to normally rough familial and community environments, juvenile delinquents can be reared in a stressful and risky environment. Many suffer from mental and physical abuse, neglect, poverty associated problems including nutrition, sexual molestation, and witness to violent activities. This lifestyle can lead directly to delinquency and PTSD. Stress disorders are not easily detected since many youth are scared and too ashamed to disclose them (Steiner et al., 1997).

As mentioned earlier, many of the health problems that detained youth possess are indicative of poor behavior choices made outside of incarceration. The State of Florida DOC may serve as an example of how health services in detention centers can approach lifestyle related illnesses through a combination of primary prevention through education and secondary and tertiary prevention through disease management.

Although delinquent adolescents often enter correctional facilities with a variety of pre-existing health disorders, other health problems develop as a result of incarceration. These problems range from self-inflicted injuries, accidental injuries, and excessive weight gain. Health problems also result from living closely with others. Due to close confinement with other youth, lice, respiratory infections, and dermatological problems are highly prevalent (Council on Scientific Affairs, 1990). Lice are present more often among the female delinquents than male. Additionally, females tend to suffer more psychosomatic complaints such as headaches and abdominal discomfort. Many injuries result from excessively aggressive recreation often encouraged by institutional staff. Over half of the trauma injuries that occur in juvenile detention centers are a result of recreational activities (Council on Scientific Affairs, 1990). In addition, injuries also occur due to overcrowding, poor behavioral management, overuse of isolation and restraints, and the stress of confinement. Most of these injuries are preventable. Excessive use of physical restraints and psychotropic medications by institutional staff as well as prolonged isolation are routinely used to control undesirable behavior. These excessive measures can cause musculoskeletal problems as well as toxic drug reactions.

As reported earlier, juvenile delinquents are more prone to suicidal behavior than non-delinquent youths. An estimated 22.6 deaths per 100,000 incarcerated youths represents a rate 2.5 times greater than the rate of adolescents 15-19 years of age in the general population (Council on Scientific Affairs, 1990). In the 1996-96 fiscal year, juveniles in three State

of Florida delinquent facilities spent an average of 227 days in suicide isolation area beds (State of Florida, DOC, 1998). Thoughts of suicide present an even greater threat for juveniles detained in adult jails.

Health Care Services

Health care services provided in correctional facilities vary from location to location. Generally, detention centers use one of three models to provide health care services:

1. On-site comprehensive care model
2. On-site limited care model
3. Off-site model

In the first most comprehensive model, a health care team of physicians, at least one psychiatrist, and several nurses provide primary and secondary care at the detention facility. The second (most common) model consists of a smaller clinic staffed by mainly nurses. Complete physical examinations and non-emergency consultations are performed episodically when a doctor makes routine visits. In the third model, non-health care personnel perform health screening and minor ailment treatment. Off-site physicians perform physical examinations and emergency treatments in the community.

The American Medical Association established health care standards, specifically for juvenile detention facilities, in 1979 (Council on Scientific Affairs, 1990).
They include:

* Regularly scheduled sick calls (occurrence varies by institution size);
* An initial medical screening by qualified health professionals or health trained staff;
* A complete health appraisal within the first seven days of admission;
* Dental screening within the first seven days, dental hygiene services within the first 14 days, a dental examination within the first month, and ongoing dental services; and
* On-going mental health services.

In general, the smaller the institution the less comprehensive the services provided.

Recently, the State of Florida mandated that inmates must serve at least 85% of their sentence; therefore, inmates are remaining in confinement longer. Other states are taking similar action. Thus, the state must treat their health needs for longer periods of time. The State of Florida DOC meets this challenge by trying to deliver as many comprehensive health care services as possible on-site. Since there is no need for extra security escorts, the cost is less than going off-site for care (State of Florida DOC, 1998).

Most state correctional facilities house adult inmates; however, many state JDC's are beginning to incorporate the same health services. In the State of Florida some of the services offered are through chronic disease clinics, dental clinics, and various health education classes. Chronic disease clinics monitor detainee conditions and regularly schedule visits for several disorders. The clinic services include hypertension, seizures, diabetes, asthma, tuberculosis, general medicine, and immunodeficiency conditions.

Florida's DOC also offers a variety of health education classes to detained juveniles. These education classes include an orientation upon initial incarceration and:

* an AIDS education program that provides information on HIV transmission, barrier methods, and an overview of living with HIV;
* cancer education teaches the inmates to perform testicular self-exams and breast self- exams;
* dental services teach oral hygiene techniques;
* communicable disease education teaches juveniles how to avoid catching hepatitis and sexually transmitted diseases and, as discussed earlier,
* various chronic disease clinics educate inmate participants about their own disorder and how to live comfortable with it.

The last health service course offers pre-natal education for pregnant females (State of Florida DOC, 1998).

Conclusion & Implications for Health Education

Delinquent youth represent an educationally underserved population with a higher than average risk for developing health problems. The lifestyles they practice prior to incarceration put them at risk for developing many health disorders and injuries they bring into confinement. Furthermore, due to poor school attendance, many juvenile delinquents miss out on health education opportunities. These youth should be protected from developing any further physical and emotional problems as a result of incarceration. According to Morris et al (1995), many detainees are interested in learning more about personal health care and would participate in developing health education programs. A sense of ownership of the material should make it more relevant in their lives.

The State of Florida offers more comprehensive and convenient health services in response to higher costs. Chronic disease clinics in combination with health education can assist delinquent youths when making lifestyle decisions outside of incarceration. For example, Ron (personal communication, 12/8/97) is HIV positive and has been incarcerated twice in the State of Florida. The first time, he was tested for HIV and then separated from the rest of the detained population. No education or counseling about his condition was offered. The second time, he received guidance counseling and education about his life. He responded by using the knowledge and self-efficacy tools to speak at groups in the community about HIV prevention and healthier decision making. Ron serves as an excellent example of good time management and use of funding for both parties. Detained youths can learn real skills that are relevant to their lives. Health education keeps inmates occupied and can help build useful self-esteem.

According to Parent (1993) not much data exists on conf-

ined youths' educational, health, or treatment needs and problems. Additional implications for health education in JDC's include performing needs analyses, evaluations of already existing programs and activities, and acting as advocates for this underserved population in order to attract more funding. Including health educators as part of the detention staff will enhance health services by making medical services more relevant to youths, thus reducing costs by reducing the number of return visits. Furthermore, to present health education more effectively in detention centers, problems within the Department of Corrections Juvenile Detention System will need to be addressed. These include living space, security, adequate health services, and continuing staff training related to responses to youth behavioral needs and activities (Parent, 1993; Parent et. al., 1994).

Health educators can take advantage of the convenient opportunity incarceration presents to reach out to this high-risk group of adolescents. While knowledge does not always change behavior, any increase in knowledge may improve these youth's lives and perhaps, peak some interest that will influence healthier behavior choices. For example, Huerta et al., (1996) found that some girls do not know how nor feel comfortable to insist upon using a condom until a health educator gives them tips to boost their self-confidence and skills toward taking control of their sexual relationships. By educating and influencing more protective behavior within the detained population, knowledge and healthier habits may spread into the general population when the youth are released. More people are protected rather than exposed to problems. In addition to coping techniques and learning how to communicate effectively, health education can serve as a tool for a successful life outside of incarceration (Spalt, 1995). Overall, health education can provide confidence in these youth to take positive control over their lives.

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A Qualitative Study of the Motivations and Concerns of Sexual Diversity Panel Participants

Kandice M. Johnson, MHSE, CHES

Abstract

Recent research has reported the effectiveness of interventions involving sexual diversity speaker panels in reducing homophobia. However, the previous research in this area focused solely on the impact of the speaker panels on audience members' attitudes toward gay, lesbian, and bisexual people, neglecting the experience of the people who participate in these panels. Yet, given the very sensitive and highly personal nature of sexuality in our society, it is important to understand speakers' motivation for participation in this type of forum. It is impossible to assess the full impact of the sexual diversity panels without taking into consideration the perspective of the panelists. Therefore, the aim of this study was to gain an understanding of the panelists' motives for participation, as well as the impact of panel participation on their lives.

Introduction

The pervasiveness of prejudice, discrimination, harassment, and violence against gay, lesbian and bisexual (GLB) people in the United States is well-documented (Herek, 1989; Schneider, 1987; Schneider & Lewis, 1984). Significant percentages of people in the United States favor social restriction of gays and lesbians, and even larger numbers report generally negative attitudes toward them. Furthermore, alarming amounts of verbal and behavioral hostility and violence are directed at lesbian women and gay men (Herek, 1989; National Gay and Lesbian Task Force (NGLTF), 1989).

Research indicates the widespread permeation of such prejudice on college campuses as well. Negative attitudes toward GLB students, high rates of harassment and violence against this population, gay male students' negative assessment of university climate, and GLB student affairs educators' reports of job discrimination have all been reported in recent studies (Geasler, Croteau, Heineman, Edlund, 1995). Although terminology differs, the term *homosexuality* is used in this article to refer to the "persistent and irrational fear of homosexuality" (Hancock, 1986, p.1). Therefore, homophobia is best seen as analogous to racism and sexism, a prejudice that leads to hatred and discrimination toward GLB people. *Heterosexism* is defined as, "the individual, group or institutional norms and behaviors that stem from the assumption that all people are heterosexual" (Papish, 1992). Heterosexism may be acted out aggressively through hate crimes (as a manifestation of homophobia), or may be passive due to lack of awareness.

The overpowering picture of homophobia in communities and college campuses suggests that counselors, student development professionals, and health educators take an active role in providing antiheterosexism education (Croteau & Kusek, 1992). One antiheterosexist intervention at Indiana University is the *Sexuality Styles and Stories* panel. This program is cosponsored by Health and Wellness Education (a division of the Indiana University Health Center) and the Lesbian, Gay and Bisexual Speakers Bureau. Generally, a panel involves five to seven GLB students who introduce themselves, share anecdotes about their experiences concerning sexual orientation, and then answer questions from the audience.

Several studies have reported the effectiveness of interventions involving sexual diversity speaker panels in reducing homophobia (Green, Dixon, & Gold-Neil, 1993; Geasler et al., 1995; Lance, 1987; Pagtolun-An & Clair, 1986). However, the previous research in this area has focused solely on the impact of the speaker panels on audience members' attitudes toward GLB people, neglecting the experience of the people who participate in these panels. Yet, given the very sensitive and highly personal nature of sexuality in our society, it is important to understand the speakers' motivation for participation in this type of forum. It is impossible to assess the full impact of the sexual diversity panels without taking into consideration the perspective of the panelists. Therefore, the purpose of this study was to gain an understanding of the panelists' motives for participation, as well as the impact of panel participation on the panelists' lives.

Methods

In order to uncover motives and impact of participation in the sexual diversity speakers' panels, the researcher relied on participant observation and interviewing. Several researchers have encouraged the use of qualitative methods to broaden the scope of studies of college student life (Kuh, Douglas, Lund, & Ramin-Gyurnek, 1994; Kuh, Schuh, Whitt, & Associates, 1991). The researcher observed three *Sexuality Styles and Stories* panels and documented audience questions and the panelists' discussion. The panelists were noti-

fied in advance of the researcher's presence and asked to sign an informed consent form to participate in the study. Following the panels, the researcher held short group debriefing sessions. Gelsne and Peshkin (1992, p. 63) indicate that interviewing more than one person at a time can prove very useful in emboldening people to talk about certain topics. The debriefing session provided the researcher the opportunity to establish rapport with panelist and solicit volunteers for individual interviews. During the debriefing session, panelists were asked to evaluate the overall quality of the presentation and to comment on the experience. At this point, panelists were asked to participate in the second phase of the research study.

Six panelists agreed to participate in the in-depth interviews. These panelists were later asked a series of questions regarding their motives for participation, perceived impact of participation, and their concerns. Interview questions were reviewed by a sexual health educator for relevancy and a GLB community activist for heterosexual bias. After completion of the observation and interview process, participants were asked to review the researcher's analysis and commentary for accuracy.

Data Analysis

Data collected during the participant observation and interviewing process was transcribed using word processing software and then sorted into analytic concepts. The initial goal of the analysis was to "develop larger categories, patterns or themes" (Whitt & Kuh, 1991, p. 412). Once the researcher became immersed in the data it became evident that the initial categories were not sufficient in explaining the panelist's perceptions and motivations. The analytical concepts, *motives for participation* and *impact of participation*, were re-categorized into four areas: 1) dispelling stereotypes; 2) educational activism; 3) role modeling; and 4) personal development issues. The concept, *concerns over potential negative outcomes*, was categorized based on panelists' worries over discrimination and non-confidentiality. Because much of the value of qualitative research lies in its interpretation, examples from interview responses are used extensively in this section to support the researcher's interpretations.

Dispelling Stereotypes

One of the primary goals of the *Sexuality Styles and Stories Panel* is to dispel myths and stereotypes about GLB people. Many of these myths and stereotypes have long been disproven by science but are stubbornly held in place by silence, ignorance, and intolerance. Some of these myths and stereotypes appear harmless on the surface:
Ed, a gay male, stated: "When the panel is over the audience can no longer say things like, 'all lesbians have short hair and wear flannel or all gay men are limp wristed and have pierced ears."

However, Lisa, a bisexual female, explains why all myths and stereotypes are damaging to the GLB community:

> Whenever you have a category and you put someone into it, you stop seeing them as a person. I think that breaking the stereotypes allows you to see someone more fully. It is easier to be hostile to someone or do something bad to someone if you see them as being different than yourself.

Many of the panelists expressed the desire to dispel stereotypes in order to "break out of the box" that GLB people have been placed into by our society. Deidra, a lesbian panelist, expressed this need by stating that:

> I want the audience to see that we (GLB people) have fuller lives than our sexual identity. Our sexuality is just one aspect of our lives. I am focused on my academic career, my family and my friends, not just my sex life. I want people to see that we are not particularly different. We all have our individual preferences, but that we are more similar then dissimilar.

One of the goals of the sexual diversity panels from the speakers' perspective was to illuminate the commonalties of the college experience regardless of a person's sexual orientation.

After more than two decades of the well-publicized struggles for gay rights in social and political arenas, it is difficult not to be aware of the large GLB communities. Due to this heightened public exposure, the researcher was surprised that many of the panelists felt that myths and stereotypes about GLB people still persisted:

> If you had asked me the need for the panels last year, I would have said that the need for antiheterosexist education was decreasing. You have Ellen on television. You have popular gay characters in the media. But I have realized by doing the panels in the past semester that a lot of the message is not reaching people. People still have a lot of misconceptions. It made me realize that this type of education will always be needed. There are always going to be people who make uneducated assumptions about people based on stereotypes. (Tina, lesbian female)

Since the sexual diversity panels provide the audience with new information and often an emotional connection, these interactions tend to refute stereotypes and reduce ignorance, which have been identified as the most critical sources of hostility toward GLB people (Herek, 1989; Marmor, 1980).

Educational Activism

Research suggests that persons with positive attitudes toward homosexual people often report having had positive contact with or personally knowing people who were gay or

lesbian (Glasser & Owen, 1976; Hanock, 1986; Hansen, 1982; Herek, 1989; Milham, San Miguel, & Kellog, 1976). It follows that interventions, such as the *Sexuality Styles and Stories Panel*, which involve contact with GLB people, may be instrumental in reducing homophobia. Several panelists reported that they felt education was necessary for eliminating homophobia:

> I think that prejudice in general is born out of ignorance. If they see a panel and are talking directly with someone who is gay, I think that it will reduce the ignorance. Hopefully, that will eliminate some of the prejudice and hatred. If you can sit and talk with someone it is hard to fear them or hate them. (Lisa, bisexual female)

In addition to educating people in order to reduce homophobia, panels provide the opportunity to raise awareness about sexual diversity issues:

> We do diversity in education panels. The audience is people who are planning on becoming K-12 teachers. They have a lot of questions on childhood realization and how to deal with negative attitudes toward GLB people in the classroom. We also do panels for listening line on mental health issues. GLB teen-agers have extremely high suicide rates. We just did a panel for a business class on the topic of harassment and discrimination in the workplace. (Chad, bisexual male)

These special purpose panels are focused on educating people about GLB issues in order to move toward a broader understanding and appreciation of diversity.

Role Modeling

The third category was one that was not mentioned in any of the literature on the subject. However, every panelist interviewed discussed their perception of themselves as either a mentor or role model for other GLB students. Another panelist described how attending a sexual diversity panel influenced his "coming out" process:

> Primarily, going to one of these panels helped me come out to myself. I was a second year when one of my teachers announced that a sexual diversity panel was coming to our class. I was planning on skipping class that day but the teacher said we would have to write a reaction paper. I was prepared to slam the panel and everyone on it. But then I thought, "how can I hate them when I am just like them." For me, it was a major turning point. I did not want to admit to myself that I was gay. I was making myself miserable trying to pretend to be something I was not. So I always assume that there is at least one person out there experi encing the same thing that I was and I try to talk directly to him or her. (Gary, a gay male)

Deidra experienced similar confusion at a young age but did not have access to the panel or other resources:

> I know when I was 18 years old, I was feeling like I was so different. I wished that there were people I could identify with or talk to about sexuality. There was nobody to talk to. I was so lonely and frightened. So I am putting myself out there as someone to talk to.

Chad, a bisexual male, was aware of the gay and lesbian community but felt there was not enough information available about bisexuality:

> At the time I started participating (in the sexual diversity panels), I did not feel like there was much visibility of bisexuality on this campus. I thought that the only way to change the situation was to come out myself and start doing panels.

In addition to being role models, many panelists saw themselves as resources for students interested in learning more about campus and community activities relevant to GLB people.

Personal Development Issues

All of the research on the sexual diversity panels has focused on the impact of the panels on audience perceptions of GLB people (Croteau & Kusek, 1992). Previous research has neglected to examine the impact of the panels on the participants. Several benefits of participation emerged from the interviews with panel participants. Personal development issues were most often cited:

> I feel like the best way for me to explore my sexuality is to put myself into a situation where I have to write about it or explain it. I put a lot of time and effort into exploring who I am during the coming out process. I do not want to become stagnant. I want to continue to explore who and what I am. The panels serve that purpose for me. (Chad)

> I do not think you can participate in the panels for any length of time and not learn something about yourself. Before the panels, I didn't have to scrutinize why I was the way I am. Sexual development is not the same for everyone but people go through the same process whether you are conscious of it or not. (Tina)

Lisa tied personal development in with educational activism when she said: "I think that anything that helps you better yourself is going to help better society. That is how change comes about..... on the individual level."

Other benefits of panel participation included increased self-confidence, networking, meeting new people and the opportunity to talk about sexual liberation.

Concerns Over Participation

1) Non-confidentiality The *non-confidentiality* theme

emerged from participants who were concerned over the possibility of being "outed" to friends or family who were not aware of the panelists' sexual orientation:

> I used to be afraid of being outed to my family. I have a grandparent in Bloomington who does not know. I have worried about it (being outed) but if it happens, it happens. I basically came to the decision to stop living my life shamefully. I am not ashamed of who I am. (Ed)

Tina also addressed the issue of non-confidentiality when she stated:

> I used to worry that I would see a classmate or someone from my dorm in the audience. I would think... 'What is everyone going to think when they hear about me?' Now, I figure there is nothing anyone can do to hurt me. I don't think they would be shocked to hear about me. I am tired of hiding my sexuality.

Although the issue of non-confidentiality did emerge from interviews with the panelist, the concern was minimized by recruiting speakers who had already disclosed their sexuality to their friends and family. Panel organizers discourage speakers from participating in panels that might make them uncomfortable. For example, Deidra does not participate in panels conducted in courses offered by the department in which she is majoring.

2) Discrimination

The second concern over participation that emerged was fear of discrimination. Interestingly, much of the concern was not over fear of discrimination from fellow students but by faculty members and future employers. Previous research indicates that the university environment is often not supportive or perceived not to be supportive of GLB students. Yeskel (1985) found that the majority of GLB students would not report or seek assistance from campus officials after incidents of violence, discrimination, or harassment. There are further indications that lesbian and gay academicians also perceive themselves and their academic careers in potential jeopardy because of their sexual orientation (Biemiller, 1982; Newton, 1987). Ed, who was previously quoted as saying he was "tired of living shamefully," revealed his fear of future discrimination:

> Even though in the past I have never had a problem keeping my academic life and my activism life separate, going into a graduate program in education, I tried to keep a low profile. In the back of your mind, you are always wondering if you will be able to find work in education if people know that you are gay.

Speakers also expressed concern over possible discrimination by university faculty and staff. Deidra, a Ph.D. student, was very concerned about how her department would react if they were to learn of her sexual orientation:

> I am always fearful of my department, especially the faculty, finding out. They are not particularly supportive of this type of thing. I do not tell anyone I am doing these panels. I do not do panels for classes in my department. I worry that when I go on the job market, that they will refuse to give me a good recommendation. Something under handed and less direct than outright discrimination.

Many academic institutions do not have statements officially prohibiting discrimination on the basis of sexual orientation (NGLTF, 1989). Even schools with established policies, such as Indiana University, may not provide GLB students adequate security against the potential for discrimination.

Although surveys of lesbian and gay students (NGLTF, 1989; Yeskel, 1985) show high rates of violence and harassment, concerns of abuse did not emerge from interviews with panelist. One speaker, Gary, addressed the concern but was able to put a positive twist on the potential for violence:

> I have never been in a panel where I felt nervous or frightened. If I was ever physically or verbally abused as a result of panel participation, it would just inspire me to do more panels. I would know people still needed to hear what I have to say.

The lack of concern over the issue of violence or harassment was surprising. Perhaps this is a sign of increasing tolerance of sexual diversity. Much of the literature that cited rampant homophobia on college campuses was from the late 1980s and early 1990s. However, it may also indicate that panel participants have a different perception of the university environment than other GLB students.

Summary

Gay, lesbian and bisexual students who participate in the sexual diversity panels found them to be a positive and worthwhile experience. They were motivated to participate in this forum for numerous reasons. The desire to dispel stereotypes, to participate in a form of educational activism, to be a role model for other GLB students, and to explore their personal identity were all motivational themes that emerged from the interviews. Although concerns over participation did arise, such as fear of discrimination and non-confidentiality, the panelists felt that the benefits far outweighed the potential negatives.

The positive influence of panel participation on personal development is an area that should be explored further in future research. Many of the previously described motives for participation are altruistic, whereas, personal development's intrinsic rewards may be of use in recruitment and retention of GLB speakers.

Overall, panel participants did not perceive the university as a hostile environment. In light of much of the previous research on GLB students' negative perceptions, future re-

search should explore the differing experiences of students actively involved in GLB activities and programs. If students involved in sexual diversity events have a more positive college experience, it would lend support to the call for more GLB support services.

One aspect of healthy sexuality is the acceptance of one's own sexuality, as well as sexual diversity. Panels, such as *Sexuality Styles and Stories*, allow people to explore their own sexuality and openly discuss sensitive issues. This open forum can have a significant impact on both audience members and panel participants' attitudes and behaviors. Health educators can facilitate this process by helping to develop sexual diversity panels at universities and colleges where they do not yet exist. For those health educators associated with schools that do have panels, health educators should include panel presentations as part of a comprehensive health and sexuality curriculum.

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High School Freshmen Parenting Attitudes Before and After "Baby Think It Over"

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The purpose of the study was to determine high school freshmen parenting attitude changes before and after the use of the "Baby Think It Over" infant simulator. Sixty-two students from Southern Illinois High Schools were given a 13 item pre-test before they checked out the "Baby Think It Over." Upon returning the infant simulator, the students were given a 13 item post-test. The completed questionnaires were analyzed using descriptive statistics, paired t-tests, and content analysis. Statistically significant differences in pre-test and post-test scores were found on the statements "Having a baby would affect a couple's relationship," and "Having a baby now would affect my current family." The question regarding being a caregiver for a child also showed a statistically significant change in scores between the pre-test and post-test. Responses to the open-ended question reflected the same types of answers that were given before the "Baby Think It Over" experience.

Introduction

The issue of teenage sexual activity resulting in out-of-wed-lock parenting has perplexed educators, health care providers, social workers and policy makers in America for decades. The consequences of early teenage sexual activity and subsequent parenting can be damaging to the adolescent, the child, and the general public. A sample of the general public indicated that they felt adolescent pregnancy is a serious problem (Barth, Fetro, Leland, & Volkan, 1992).

The purpose of this study was to determine attitudes among high school freshmen about parenting before and after the use of the "Baby Think It Over" infant simulator. More specifically the study sought to answer the following questions: What are high school freshmen's reported attitudes about parenting before using "Baby Think It Over"?; Do students' attitudes toward parenting change after using "Baby Think It Over"?; What are freshmen's perceptions about caring for "Baby Think It Over" as compared to caring for a real baby?

Related Literature

The United States has the highest adolescent pregnancy rate of any industrialized country in the world (Smith, Weinman, & Buzi, 1996). Every day it is estimated that 2,700 teenage females become pregnant in the United States (McCullough & Scherman, 1991). This means approximately 600,000 teenagers become pregnant unintentionally each year (Fisher, 1990). The majority of these pregnancies occur within the first three months of sexual activity with a new partner. For many, these pregnancies may result in abortion. Many adolescents choose, however, to keep their babies. Each year 9,490 adolescents aged 13 or 14 have their first baby, and 4,740 sixteen-year-olds have their second child (McCullough & Scherman 1991). In the state of Illinois in 1995 there were 652 births to females under the age of 15 years old, and 24,662 births to females between the ages of 15 and 19 years old (CDC Wonder, 1997).

Teen pregnancies have increased as teenagers become sexually active at an earlier age than in years past. By the age of 15 years, 6.6% of females and 17.5% of males have had sexual intercourse (Atwood & Donnelly, 1993). By the end of the senior year of high school, more than half of students have had sexual intercourse at least once (Morgan, Chapar, & Fisher, 1995).

Many unintentional and unwanted pregnancies occur to adolescents who are not married, resulting in single parent adolescent families. The majority of these families are poor and headed by the mother (Caldas, 1993). There is also an increase in sexually transmitted diseases and AIDS, school dropout rates, repeated pregnancies, preterm deliveries and parenting problems (Scott-Jones, 1991; Smith et al., 1996). Adolescent pregnancy also plays a large role in the infant mortality rate and the prevalence of low birth weights in the U.S. (Kobokovich & Bonovich, 1992). The taxpayer often becomes responsible for these single adolescent mothers. According to the Center for Population Options, the annual government cost for health and social services for families that resulted from adolescent pregnancy is estimated at $17.93 billion (Kobokovich & Bonovich, 1992).

In 1981, the Adolescent Family Life Act targeted prevention for adolescent premarital sexual relations through abstinence based programs. At that time, educators and health officials expanded health education programs that target adolescent pregnancy prevention (Males, 1993). Since then, multiple curricula have been developed to target this epidemic. Sexuality education of some sort is provided to almost 90% of large school districts in some form (Kirby et al., 1994). Many types of instructional strategies have been used to show the effects of adolescent pregnancies more vividly to students through videos, role playing and discussion

groups. Studies have shown that these strategies have little impact on pregnancy rates. Increasing emphasis has been placed on the need for an educational tool to address adolescent pregnancy effectively (Barth et al, 1992).

An educational tool that is relatively new on the market is "Baby Think It Over." This is an infant simulator designed to give students "hands-on" experience of parenting a young infant. "Baby Think It Over" is intended to help adolescents understand two important facts about infants: (a) Their demands are unpredictable but must be met promptly; and (b) They require a great deal of time and attention and will change the adolescent's lifestyle profoundly. This doll is designed to be an aid to educators, doctors, and other professionals in helping adolescents make responsible, informed choices about parenting.

Methods

The sample size for this study was 62 (N=62) and was comprised of 18 male and 44 female freshmen high school students enrolled in health or home economics classes and who currently do not have a child. The mean age of the students was 14.8 years old. The youngest student was 14 years of age and they oldest student was 17. None of the 62 respondents had a child. The students were from two Southern Illinois area high schools who had parental permission to participate in the "Baby Think It Over" program.

The freshmen were given a pre-test questionnaire. The questionnaire used was a reformatted version of an instrument that was developed by "Baby Think It Over." The researcher retyped and reworded the questionnaire [Insert figure 1 about here] to provide easier readability for the freshmen (see figure 1). Then they experienced the "Baby Think It Over" infant simulator intervention for 24 hours, followed by the post-test questionnaire.

The data collection design allowed the dependent variable (attitudes) to be tested, followed by an intervention ("Baby Think It Over"), and then re-tested the dependent variable (attitudes). The last measurement of the dependent variable allowed differences to show between the pre-test and the post-test due to the influence of the independent variable (Babbie, 1995.

Data were analyzed using a simple descriptive statistics (percents and means), paired *t*-test, and content analysis. Demographic questions were analyzed using descriptive statistics consisting of percents. The Likert-type questions were analyzed using means. Paired *t*-tests were run to determine if there were statistically significant differences. Means and paired *t*-tests were calculated for the two linear, numeric questions from the pre-test to the post-test. The alpha level of significance was set at .05 for all the paired *t*-tests. The four open-ended questions were analyzed using content analysis procedures. Content analysis "is the process of identifying, coding, and categorizing the primary patterns in the data" (Patton, 1990, p. 381). The content analysis identified the "themes" that are apparent for each question.

Results

It was found from this study that when subjects were asked to determine the importance of being in a relationship when having a baby, a majority of students (95.2%) surveyed felt that this was very important. This was true for both the pre-test and post-test. Statistical significance was shown between pre-test and post-test responses to the statements "Having a baby would affect the couple's relationship" (t = -0.629; p=0.53) and "Having a baby now would affect my current family" (t=-3.282; p=.0017). Ninety-four percent of the freshmen reported that their parents would be disappointed and/or mad about the situation. Of the respondents, 39% reported that their parents, even though angry, would still be supportive. This was expressed in statements such as, "They would be upset and not approving, but would help me out whenever I needed it." The other 6% stated that this was not an issue for them because they were not planning on becoming pregnant while in high school. This attitude can be seen is statements such as, "I don't know, I am not going to have a child until I am 27." In both cases, a majority of respondents agreed or strongly agreed with these statements. The significance occurred due to several respondents who initially had answered strongly disagree or disagree but changed their responses on the post-test to agree or strongly agree.

When students were asked to rate their ability as a caregiver (feeding, bathing, changing, soothing) a statistically significant difference occurred from pre-test to post-test (t=-5.11;p=.0001). On the pre-test, responses were more evenly distributed on the scale of 1 (not able) to 10 (very able), but on the post-test responses congregated more toward the mean (5.1) with fewer scores scattered throughout (SD=2.8).

When asked to rate their ability as a provider (paying for food, clothing, and doctor visits) on a scale of 1 (not able) to 10 (very able) for a child, no statistical significant difference occurred from the pre-test to the post-test. The mean for both was 3.2, meaning the students felt unable to provide for a child. Many of these feelings were reiterated in the responses that were reported in the quantitative items. Many students felt the responsibilities of taking care of a baby would be too much to handle, as was expressed by one student, "I wouldn't be able to deal with the responsibility of having to pay for its food, and so forth, and taking care of it."

Finally, respondents were asked to assess how realistic the "Baby Think It Over" infant simulator experience was compared to that of a real baby. A majority (90%) felt like the experience was realistic because the baby cried often, as real infants do, and needed to be fed and tended to regularly. Ten percent of those who responded felt that "Baby Think It Over" was not like a real baby at all.

Discussion

This study is based on high school freshmen's attitudes

Figure 1. **Sample Questions from Modified Pre-Test/Post-Test**

Please put the best number in the space provided.

At what age do you wish to have your first child?_____

Please mark the answer that best applies to how you feel about each statement.

It is important to be in a relationship with a spouse or partner before having children.

_____strongly agree
_____agree
_____undecided
_____disagree
_____strongly disagree

Having a baby affects the couple's relationship.

_____strongly agree
_____agree
_____undecided
_____disagree
_____strongly disagree

Having a baby now would affect my family(parents/caregiver;siblings)

_____strongly agree
_____agree
_____undecided
_____disagree
_____strongly disagree

Please answer the following questions with 1 being not able to and 10 being very able.

_____On a scale of 1 to 10, how do you rate your abilities **now** as the caregiver for a baby's needs (feeding, bathing, changing, soothing, keeping it safe and healthy)?

_____On a scale of 1 to 10, how do you rate your abilities **now** as the provider for a baby's needs (paying for food, clothing, doctor visits)?

Please take your time and answer the following questions thoroughly.

(On pre-test only)

How would you feel if you were to become a parent in the next year?

How would your parents/caregiver feel if you were to become a parent in the next year?

(On post-test only)

How has using 'Baby Think It Over' changed your opinions about parenthood?

13. In what ways do you think caring for 'Baby Think It Over' was like caring for a real baby?

toward parenting before and after using the "Baby Think It Over" infant simulator. There were limitations to this study that inhibit the generalizability of this study. The first limitation was the absence of reliability data for the instrument. The second limitation was the sample bias. A sample of convenience was used. This sample is limited to two southern Illinois high schools. It is not intended to be generalized to other area high schools. Parental consent was another limitation for sample bias. Only students who had parental consent were able to use the "Baby Think It Over" infant simulators. This might have inhibited the students who are most at risk and might have benefitted the most from the experience. The results may be different for those who had parental consent than for those did not have parental consent if they would had been evaluated. A third limitation to the study was the timeframe for which the subjects had the "Baby Think It Over" infant simulator. The responses are based on a 24-hour time period with the dolls. The timeframe the subjects have the infant simulator may have an impact on the results of this evaluation.

Many students surveyed expressed very realistic attitudes toward adolescent pregnancy and parenting. The majority of the freshmen responded on the pre-test and post-test that they knew becoming pregnant and having to raise a child is a big responsibility. They felt they could not handle this responsibility while in high school. These freshmen also had realistic attitudes that having a baby affects couple and family relationships. Over 75% of all the freshmen studied on the pre-test and post-test strongly agreed or agreed with the questions regarding their attitudes toward being in a relationship with a spouse or partner before having a baby, that having a baby affects a couple's relationship and that having a baby would affect their current family. Students may have formed these attitudes from personal experience of being around a younger sibling, cousin, niece or nephew. This experience may have provided these students with opportunities caring for a baby, giving up their own time or having to do without something to aid the baby. These students also may have seen first hand the effect that dealing with a new baby has on a relationship between two adults. Addition to a family alters the life of everyone involved.

The perceived abilities as a caregiver and provider may be representative of the freshmen's current level of responsibilities in relation to children. Freshmen high school students are at an age when babysitting is a frequent opportunity for them. Babysitting allows the students to be in a caregiver role for a relatively short amount of time. Within this time, the student is responsible for the child's needs as a caregiver. So it is not surprising that students feel like they might be an adequate caregiver.

Students on both the pre-test and post-test felt that they could not adequately provide for a child. Again, students realistically believed that they were not able to provide for a child. The "Baby Think It Over" experience did not change this group of students' attitudes toward being a provider; however, it proved useful as a tool to reinforce the feelings the students currently had.

The freshmen surveyed on the pre-test also reported that there would be some contention between them and their parents if they were to become pregnant within the next year. There were statistically significant differences on the pre-test and post-test regarding the statements "Having a baby affects the couple's relationship" and "Having a baby now would affect my current family." These differences in the pre-test and post-test were exhibited by a shift in attitudes for those who had responded undecided, disagree, or strongly disagree on the pre-test to agree or strongly agree on the post-test. "Baby Think It Over" may have helped these students fully understand that having a baby is a life altering experience. Students who expressed the greatest change in attitudes may have never experienced caring for a baby. Perhaps they have no siblings or are too young to remember a younger sibling in the infant stage. If students have never had these experiences, their initial attitudes may be quite different than those who have.

Students were asked on the post-test how the "Baby Think It Over" experience changed their attitudes toward parenting. Most of the freshmen expressed a lack of means to provide for a baby or a lack of responsibility to care for a baby. Some examples of these responses included, "I am too young and do not have the ability to take care of a baby right now," and "Don't want to have kids, they are too hard to care for and provide for." These students did not seem to indicate that the experience changed their opinions. Students did indicate reasons why they did not want to become a parent while in high school. "Baby Think It Over" possibly provided more of an attitude reinforcement for the students than a change. The majority of the students had realistic attitudes to begin with and what they articulated in their responses reiterated those realistic attitudes.

Differences were noted between the pre-test and post-test open-ended questions. One of the pre-test students acknowledged their feelings of not wanting a child while in high school. Very few students expressed why they felt this way. Many of the answers were short and to the point such as, "I don't want a child while in high school," and "I am not going to have a child in high school." On the post-test, the students still communicated they did not want a child but they also elaborated on why they did not want a baby. For example, "It would take too much of my time and I could not have fun or party," "I do not have the means to provide for a child right now." "Baby Think It Over" may have provided an opportunity for the subjects to explore their reasons of not wanting a child while in high school. After this experience they were now able to articulate their reasons.

Conclusions

It was concluded from this study and within the limitations of this study that the "Baby Think It Over" infant simulator provided a reinforcing tool for freshmen who already be-

lieved that having a baby while in high school is a life-altering situation. For those freshmen who had not decided or did not agree that having a baby while in high school is a life altering situation, "Baby Think It Over" provided a learning opportunity. It can also be concluded from the 90% of students who commented in favor of the infant simulator being like a real baby, that "Baby Think It Over" is an effective infant simulator.

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Occupational Stress and Coping Mechanisms Among Emergency Medical Technicians And Paramedics

Angela Kay Miller

Abstract

Stressful traumatic events or critical incidents may be described as unusual occurrences involving exposure to events that are sudden, overwhelming, and emotionally challenging. There is a growing recognition that professionals who are called upon to assist those affected by traumatic events can themselves become secondary victims. Emergency Medical Technicians (EMTs) and paramedics save lives. Unlike any other professionals, their job is to deliver life-saving pre-hospital care to victims of accidents or illness. They must frequently be resourceful, while remaining cognizant of how much time is being used and how much time the patient has to survive. The work environment is sometimes poorly lit and all too often chaotic. Work-related stress and the pressure for flawless technical performance are predominant themes in the literature related to EMTs and paramedics. This paper will provide an overview on the literature of EMTs and paramedics and what they must do to fulfill the responsibility of saving lives.

Introduction

The world of emergency medical care is one of the most rapidly developing fields in present-day medicine. With respect to pre-hospital emergency care, the changes in this area in the past decade have been especially astounding. Prior to the late 1960s, pre-hospital emergency care simply was not available. In recent years, the introduction of Emergency Medical Technicians (EMTs) and paramedics has become a widely available means of early intervention in medical emergencies. For emergency victims, all this has meant an improvement in their chance for survival. Unfortunately, advances in emergency care offer significant potential for experiencing stress as the responders attempt to meet the unpredictable and often intense demands of trauma victims.

Demands Made by the Work Environment

In doing emergency pre-hospital care, EMTs and paramedics face stressful situations with which they must deal. Finding time to eat, rest, and go to the bathroom can be difficult achievements because the emergency runs on which they are sent follow no predictable pattern. EMTs and paramedics find that they must create their own opportunities of time and place to satisfy the basic physical necessities common to all humankind. Because emergency runs can occur at any moment, there is no way that EMTs and paramedics can "even out" the flow of their work.

The stress and pressure of the work are due, in part, to the dramatic changes that have taken place in the standards and practice of emergency medical care since the early days of the profession. In 1970, the usual preparation for emergency work was completion of a basic first-aid class, and in some states only a valid chauffeur's license was required (Graham, 1981). Today, ambulances in many cities are equipped as mobile intensive care units. As Mannon (1992) noted, "having a paramedic on the scene...is like having a doctor by proxy" (p. 92). Smith and Bodai (1985) suggested that 15% of all trauma cases are true life-threatening emergencies, which require EMT and paramedic intervention. This figure does not include medical emergencies (e.g., heart attack, stroke, and diabetic states) which also commonly require advanced pre-hospital care. Many such emergencies are time-critical. Wright (1986) pointed out that a ten-minute delay between incident and initiation of emergency care reduces survival by 10-15%. Smith and Bodai stated that paramedics "are asked to perform services previously restricted to highly trained physicians" (p. 547).

The unpredictability and unique demands on the pre-hospital emergency care worker were described by James (1988) as sources of stress, as well as attractions of the job. Often working in dangerous conditions, emergency care workers are exposed to a wide range of threats; for example, there is always the possibility of contracting diseases from patients, or suffering physical damage from dangerous chemical spills at the scene of an accident. They have to cope with blood, pain, distorted bodies and sickness in every shape and form (p. 320). James concluded that emergency work offered significant potential for experiencing stress as the workers attempted to meet the unpredictable and often intense demands of trauma victims.

EMT and paramedic work is particular and demanding, with serious consequences for error. Jeffrey Mitchell, psychologist and former fire-fighter-paramedic, stated "If you make a mistake in the office while typing a letter and type an "o" where there should be an "e," it's no problem. But if you inject 50 milligrams of morphine when you should have been using 5, you have a dead body" (as cited in Hopper, 1988, p. 6).

The EMT and paramedic's job is characterized by ambiguity and doubt. They must frequently be resourceful, while remaining cognizant of how much time is being used and how much time the patient has to survive. The work environment is sometimes poorly lit and all too often chaotic. EMTs and paramedics must be able to function autonomously, yet work smoothly as a team. They must make on-the-spot medical assessments and treatment decisions and be able to communicate their findings to a physician.

Gonzales (1989) observed: "They never know, when they drive out, whether they're going to find a dead baby or a lunatic with a gun. Stress is a major occupational hazard" (p. 135). Mitchell (as cited in Hopper, 1988) agreed, saying: "There are few jobs in the world where you may end up being shot at; there are few jobs in the world where you may have the life of a two-year-old in your arms, and what you do in the next few seconds is going to make or break that child's life" (p. 8).

It makes intuitive sense that a particular sort of individual would be needed to perform such demanding work, and indeed there are substantial personal expectations for persons entering the field. The Encyclopedia of Career and Vocational Guidance (Hopke, 1987) described qualities necessary for success: paramedics and EMTs must be able to "project an impression of confidence and efficiency...exhibit leader ship qualities, acting firm but pleasant and courteous" (p. 422). In addition to acting like they know what they are doing, EMTs and paramedics must demonstrate "genuine levelheadedness and sufficient calmness to let them consistently exercise good judgment in times of stress...(they) should have stable personalities yet remain flexible in their approach to problems" (p. 422). Work-related stress and the pressure for flawless technical performance are predominant themes in the literature on EMTs and paramedics.

Stress and Varied Medical Care Professional Roles

Barry (1998), a contemporary psychotherapist, defined stress as being the subjective feeling of tension in response to environmental events that are perceived as threatening (p. 146). Occupations such as police work, fire fighting, emergency services, hospital services, and mental health professions are at risk for experiencing high levels of stress due to the involvement with traumatic events. The past decade has witnessed a growing recognition that professionals who are called upon to assist those affected by traumatic events can themselves become secondary victims (Paton & Violanti, 1996). Research studies in the field of medical care professionals have focused on stress and coping mechanisms from many different perspectives. Sociologist James Mannon (1992) conducted ethnographic research on EMTs and paramedics in the Midwest. He graphically portrayed the EMTs and paramedics responsibility to perform gr efully under pressure:

Since EMTs and paramedics are the first medical care personnel on the scene, they routinely witness the stark realities of human illness and trauma—people whose bodies are still bleeding, whose pain is yet to be numbed by drugs, whose mutilated and traumatized bodies are yet to be covered up, sewn up, or treated in some way to "look better." Whatever horror human existence has to offer by way of disease, violence, and neglect, the EMT and paramedic confront as daily occurrences and firsthand witnessed events. Yet their work requires them to carry out their medical routines "as if" it were in a classroom exercise. They are expected, by those they work for and those they treat, to deliver the techniques and skills of life support in a cool, calm, efficient, and swift manner"(1992, p. 47).

The purpose of Mannon's study (1992) was to observe how ambulance paramedics and EMTs managed to cope with the various medical emergencies they confront. James (1992) observed: "To be a paramedic or EMT, one cannot live only for the emergency runs; one must also learn to find enjoyment in the company of equals in the crew room or wherever the periods of waiting are spent" (p. 216).

Golstein, Jamner, and Shapiro (1992) studied ambulatory blood pressure and heart rate in 30 male paramedics, comparing data collected during a workday and a non-workday. The blood pressure readings of the paramedics were higher during ambulance runs, at accident scenes, and at the hospital than they were during a non-workday. The researchers speculated that high occupational turnover rates and exit from the occupation at a relatively young age might protect paramedics from developing hypertension.

Dutton, Hsi, Leach, Lorimor, and Smolensky (1978) examined levels of stress and coping mechanisms in emergency care professionals. The researchers found that EMTs and paramedics reported higher levels of job stress (compared to fire fighters) on a questionnaire designed for their study. The EMTs and paramedics reported more frequent exhaustion and fatigue, feeling greater responsibility for the lives and welfare of others, less time between heavy work load periods, and lower job satisfaction.

The Staff Burnout Scale for Health Professionals was used by Grigsby and Mcknew (1988) to examine various stressors and coping mechanisms among 213 EMTs and paramedics in South Carolina. This study yielded job burnout scores of EMTs and paramedics considerably higher than results found in studies of nurses in the same area.

Comparable to Grigsby and Mcknew (1988), job burnout was the interest of James's research (1988). The researcher employed factor analysis to explain sources of stress and burnout among British ambulance personnel. James (1988) found that EMTs and paramedics, who perceived that chance and powerful others exerted control over their life events, and who have had shorter length of service, have stronger perceptions of being under stress than EMTs and paramedics possessing extended years of experience in ambulatory care.

In an attempt to add specificity and clarity to the explora-

tion of occupational stress in the health care environment, Numerof, Shachar, and Cramer (1983) conducted a nationwide study in 1981 and 1982. The researchers examined stress and coping strategies among senior level administrators, medical directors, and directors of nursing in hospitals. These researchers found that there were significant differences between the levels of stress of the three types of health care personnel. Directors of nursing reported significantly higher stress than medical directors and administrators in regard to being responsible for, but not having direct control over, the quality of patient care. This finding could also reflect the levels of stress among EMTs and paramedics due to the intensed demands of the profession.

Coping Mechanisms and Emergency Care Roles

The work environment and work socialization process can have a significant influence on the development of coping methods. Mannon (1992) concluded that EMTs and paramedics use four strategies for coping with the stress engendered by dealing with severely ill or injured patients. The first method is the suppression of emotions. Medics may fail to fully perceive their patients as people, instead treating the situation as a series of tasks to be performed mechanically and methodically. A second coping method is to depersonalize the patient. Without a name, Mannon suggested that the patient remains an object, and thus the medic is able to avoid attachment. Another method is to celebrate the "saves" (those patients not expected to live). These successes are a major source of pride, satisfaction, and feeling of accomplishment. "Saves" make the job worthwhile; they are what Mannon called "mission relevant." The fourth method of coping is to savor personal recognition. This includes posting thank-you notes from patients or families, keeping newspaper clippings and photos, which feature individual medics or crews, and maintaining a personal file of commendations.

In prior work, Palmer (1983) suggested that there were four coping strategies used by EMTs and paramedics. One is the use of humor, which entails blowing off steam by joking about situations in a manner that would horrify outsiders. Another is educational desensitization, a process which the EMT and paramedic is encouraged to focus on the patient as a series of tasks to be performed. The third strategy, scientific fragmentation, accomplishes much the same thing. A patient will often be referred to by injury or medical condition, not by name. Finally, language alteration, such as the use of standard radio codes to describe a medical condition, also provides distancing and emotional protection. Today, research has shown these methods are used most frequently with severely ill or injured patients and are tacitly supported by colleagues and hospital personnel. Larsson, Kempe, and Starrin (1988) used structured interviews to study appraisal and coping processes in police officers. They noted that compared to ordinary citizens, police officers were significantly more likely to see a situation as solvable, to be more challenged and less threatened, and to use more problem-focused forms of coping. The researchers commented that the success of one's chosen coping methods, along with age and time on the job, may significantly affect job satisfaction and perceived job stress. Perhaps this is also true of EMTs and paramedics.

Hammer, Mathews, Lyons, and Johnson (1986) argued that personality might be the most important factor in the susceptibility to stress. The researchers compared the Medical Personnel Stress Survey scores of 374 paramedics to those of a normative group of hospital workers. Paramedics were significantly more likely than hospital workers to suffer from elevated levels of stress. The researchers suggested that the paramedic profession may, in fact, attract individuals who are more comfortable than the average person in a stressful environment. Whatever the predisposing conditions, stress and burnout syndromes in paramedics have been well documented through qualitative research (Graham, 1981; Hammer et al., 1986; Mannon, 1992).

Summary

EMT and paramedic work has been characterized as physically, mentally, and emotionally strenuous. A significant amount of stress is evident in the medical emergency profession. Researchers in the field of pre-hospital emergency care have focused on perceived stress and coping mechanisms from many different perspectives. For the most part, the EMTs and paramedics seemed to regard stress as a normal part of their working environment. Therefore, studies should be developed in an attempt to identify levels of stress and coping mechanisms of EMTs and paramedics because the potential relationship between stress and coping strategies is a current and future concern to the medical profession. Future studies could be used to design stress management interventions among EMTs and paramedics to reduce stress that may have an impact on the quality of emergency care. Such studies would lay the groundwork for much-needed further examination of an emerging profession.

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Academic Stress of International Students: Comparison of Student and Faculty Perceptions

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Abstract

This study (1) examined the stressful impact of living in the United States among male and female international students and the unique patterns of social support that influence the ability to cope with academic stress and (2) compared faculty and student perceptions of students' stress. The sample consisted of a random sample of 144 students and 61 faculty members from two Midwestern universities. International students experience highest levels of stress. Males scored higher than females on all the five stress categories. Females, however, showed more reactions to stress. A comparison of student and faculty responses showed that faculty members perceived students to have higher stress and show more behavioral and emotional reactions to stress than students' self-perceptions. International students' stress and reactions to stress are influenced by their life stressors such as concerns with finances, language difficulty, interpersonal stress, stress of a new culture, and academic pressure. All the sub-scales of ILS (except language difficulty) were significantly correlated with stress and reactions to stress. Social support, however, did not decrease academic stress as hypothesized.

Introduction

The United States of America ranks first among all countries of the world that host foreign students. According to the annual report, *Open doors* 1995-1996, a total of 453,787 students representing more than 186 nationalities attended American colleges and universities (Davis, 1996). International students constitute a significant proportion of students at all levels of education receiving 11% of masters degrees and 23.4% of doctorate degrees (U.S. Department of Education, 1993). Economic, cultural, and political factors indicate that this number will continue to increase significantly in the future (Huang, 1994; Hayes & Lin, 1994; Sandhu & Asrabadi, 1994). For American universities with declining enrollments, hosting international students is an economically rewarding opportunity.

Background and Significance

There is a general consensus that international students in American colleges and universities face unique stresses and have more adjustment problems than American students as they undertake their studies (Cheng, Leong & Geist, 1993; Sandhu, 1994). Demanding courses, financial pressures, fear of failure, as well as anxiety, uncertainty, and conflict surrounding the establishment of personal values and identities, may create a very difficult environment for students. College may be even more stressful for international students who have the added strain of differing cultural values, language, academic preparation, and study habits (Coehlo, 1980). Despite these obstacles some international ethnic groups have shown an exceptional ability to succeed academically. However, many others experience psychological distress (Aldwin & Greenberger, 1987). This is because foreign students sometimes rank in the top levels of their native country schools, and expectations about academic performances in new and alien educational systems are unrealistically high (Svarney, 1991). Having scholarship and financial aid often creates added pressures of performing well to maintain such support. The need for high academic achievement then becomes a critical stressor for many international students. A review of literature derived the following six key areas of stress: culture shock, change in social status, change in economic status, expectations about academic performance, family-related pressures, and a miscellaneous category encompassing idiosyncratic issues (Orpeza, Fitzgibbon, and Baron, 1991). These stressors have been found to potentially create academic problems (Marion, 1986). Research indicates that international students not only are more likely to experience stress, but also may rate their experiences in the United States as more stressful.

One of the psychosocial modifiers of stress is the degree of social support an individual experiences (Thoits, 1982). Social support has been identified as having a buffering effect on stress for these students. Unfortunately the relationships of most international students with Americans rarely go beyond superficial contacts, and many international students soon give up hope of establishing deep cross-cultural friendships (Bulthuis, 1986). Lack of support from fellow American students increases the likelihood of seeking assistance and support from faculty members when faced with educational/vocational problems (Leong and Sedlacek, 1986). Therefore, the ability to understand and accurately perceive students' stressors is critical. It is generally easier for faculty

members to communicate with students if their perceptions of the students' stress are realistic (Merrill and Reid, 1981). Immediate families and other co-national are also important sources of social support for international students (Bulthuis, 1986). If support is inadequate, the stress of adjusting to life in the United States may result in symptoms of distress. This is especially true for female students due to the traditional gender roles learned in many cultures (Vanfossen, 1986). Although no clear pattern of differences in stress by gender have been established by the few existing studies on international students (Manese, Sedlacek, Leong, 1988), a pattern of academic stress might very well exist among international college students. The adjustment of this population to their new homes is important, but few studies have addressed it. The present study seeks to remedy this shortcoming.

Project Objectives: This study examined the stressful impact of living in the United States among male and female international students and the unique patterns of social support that influence the ability to cope with academic stress. The following research questions will be addressed: (a) Does life and academic stress vary by gender among international students? (b) Do students with lower levels of social support have higher levels of academic and life stress? (c) Is there a difference between student and faculty perceptions of students' academic stress?

Justification for the Project: The results of this research could be useful in at least three ways: (a) promote understanding of the academic and life stressors among international students; (b) provide a basis for mutual examination by students and faculty members of students' perceived academic stress; and (c) provide an empirical rationale for information given to international students in academic assistance programs. Results will also help in the development of methods to reduce stress and improve effective communication between international students and professors, thereby improving the academic and social efficiency of international students.

Methodology

Sample Design, Sampling, and Data Collection: Component 1 consisted of a cross-sectional survey of international students at two universities in Missouri that enroll high numbers of international students (i.e., Central Missouri State University and Truman State University) as per the *1995-1996 Open Doors* report (Davis, 1996). The sample consisted of a random sample of international students in the two schools stratified by gender and graduate/undergraduate level of education. The sampling frame chosen was the respective University Registrars' directory of address files. The advantage of using this sampling frame was that it provided an up-to-date address list by gender and educational level. Information about students' social support, life and academic stress was collected using a questionnaire.

Component 2 consisted of a cross-sectional survey of faculty members from the above mentioned universities. Faculty members were randomly selected from the faculty directory using those employed as full or part-time instructors, assistant professors, associate professors, or full-time professors from each department. Faculty members were sent the survey along with a cover letter.

Instruments/Measures: The data collection instrument included the following variables: Academic Stress was measured by Gadzella's Student-life Stress Inventory (1991) which contains 51-items in a Likert response format (1=never true to 5=always true). It assessed five categories of academic stressors (frustrations, conflicts, pressures, changes, and self-imposed), and four categories describing reactions to these stressors (physiological, emotional, behavioral, and cognitive). The instrument was modified to obtain faculty perceptions of students' academic stress. For example, if an item from the frustration sub-scale read, "As a student, I feel I was denied opportunities in spite of my qualifications," the same question modified for faculty members read, "International students at your university feel they are denied opportunities in spite of their qualifications. Internal consistency estimates ranged from 0.59 to 0.82 on the nine categories in the present study.

Life Stress was assessed using the Index of Life Stress (ILS) (Yang and Clum, 1994) which measured the following five areas of life stress: (a) language difficulty, (b) cultural adjustment, (c) academic concern, (d) financial concern, and (e) interpersonal stress. The ILS was selected because it reflects the unique patterns of life stress for this population. The instrument was modified to obtain the faculty perceptions of students' life stress. Coefficient alpha of the subscales ranged from 0. 66 to 0.88.

Social Support was measured by the Index of Social Support (ISS) scale (Yang and Clum, 1994). The scale assessed four areas of social support: (a) contacts with one's own culture; (b) contact with new friends in the United States and direct family; (c) contact with local community and student organizations; and (d) contact with religious places (churches). The faculty survey consisted of a modified version to get the faculty perceptions of students' social supports. Coefficient alpha of the subscales ranged from 0. 83 to 0.96.

Basic demographic information collected were age, gender, educational level, and degree sought.

Data Analysis: The first stage was primarily descriptive. Prevalence of life stress, social support and academic stressors of the international students were examined. Differences by gender were examined using t-tests. Component 2 was a survey designed to compare academic stress as perceived by international students and how it correlates with the university faculty members' perceptions. Total scores in addition to scores on the nine categories of the academic stress scale were compared between professors and students. T-tests were used to compute the differences between the two scores, and Pearson's correlation was used to determine

the association among the sub-scales. Data were analyzed using the Statistical Package for Social Science (SPSSx) software.

Results

The sample consisted of 144 students and 61 faculty members. Mean age for faculty was 44.6 years (SD=9.2) and mean age for students was 24.2 years (SD= 4.3). The faculty, however, consisted of more females (65.5%) than males (34.5%). Although smoking status was comparable between the two groups, alcohol consumption was reported slightly higher among the faculty (55.2%) than the students (40.0%). Faculty reported drinking in moderation, while students defined drinking as bingeing on the weekends.

Academic Stress: Table 1 compares stressors and reactions to stressors of male and female international students. International students experience higher levels of stress due to pressure, followed by self-imposed stress. Males scored higher than females on all the five stress categories (i.e., pressure, conflict, frustration, self-imposed, and changes). The only statistically significant difference by gender occurred in the area of frustration, with females reporting significantly less stress due to frustration than males ($p<0.01$). The most common reaction to stressors among the students appeared to be emotional (i.e., fear, anxiety, worry) and cognitive (i.e., their cognitive appraisal of stressful situations and their strategies). Other reactions that occurred less frequently were behavioral such as crying and abuse. Physiological reactions such as sweating, trembling, stuttering, headaches, weight loss or gain, and body aches also were less seldom among the international students. Although females had less stress than males, they were found to have more reactions to stress than males. This difference, however, was not statistically significant.

A comparison of student and faculty responses to international students' academic and life stress showed that faculty members perceived students' stress to be higher than students' self-perceptions. Faculty perceived international students to experience higher levels of academic stress due to changes, conflicts, and frustration ($p<0.05$), and life stress due to financial difficulties, language problems ($p<0.05$), adjustments to new cultures ($p<0.05$), and interpersonal stress ($p< 0.05$). A statistically significant difference was also observed for self-imposed stress. International students perceived higher self-imposed stress than reported by the fac-

TABLE 1. COMPARISON OF STRESSORS AND REACTIONS TO STRESSORS OF FACULTY AND STUDENTS

	(n=67)		(n=249)	
VARIABLES	**MEANS**	**SD**	**MEANS**	**SD**
STRESSORS				
CHANGES	8.37	2.48	7.46	2.54
CONFLICT	8.85	2.08	8.39	2.45
FRUSTRATION*	19.33	5.10	17.81	5.14
PRESSURES	13.20	2.88	13.2	3.41
SELF-IMPOSED*	18.16	4.04	20.08	4.30
REACTION TO STRESSORS				
BEHAVIORAL	14.89	7.37	13.31	4.11
COGNITIVE	6.30	1.87	6.60	2.24
EMOTIONAL	11.00	3.67	10.61	4.00
PHYSIOLOGICAL	25.12	13.61	27.4	8.6
LIFE STRESS				
FINANCIAL CONCERN	12.56	2.32	11.06	5.90
LANGUAGE DIFFICULTY*	9.80	2.02	7.20	4.16
INTERPERSONAL STRESS*	9.43	3.38	7.25	4.93
NEW CULTURE*	13.73	2.74	11.23	5.56
ACADEMIC PRESSURE	9.90	1.84	10.05	4.05

* $p < 0.05$

ulty. Faculty members noted international students showed greater behavioral and emotional reactions to stress than what the students perceived.

Life Stress and Social Support

Table 2 compares life stress and social support among male and female international students. Males had lower life stress than females. Although not statistically significant, females scored higher than males on stress from academic pressure, interpersonal relationships, and language difficulties, while males indicated higher stress due to cultural adjustments and financial problems. Males also had more social support than females as measured by their contacts with direct family, secondary family, old friends in the home country, churches, school organizations, and local community and student organizations ($p<0.05$). Female international students, however, made more friends in the United States than their male counterparts.

Associations of academic stress to life stress and social support show that international students' stress and reactions to stress are influenced by their life stressors such as concerns with finances, language difficulty, interpersonal stress, stress of a new culture, and academic pressure. All the subscales of ILS (except language difficulty) were significantly correlated with stress and reactions to stress. Social support, however, was not associated with stress, excluding contact with local community, students, churches, and reactions to stress. In addition, social support did not decrease academic stress as hypothesized.

Discussion

We hypothesized that social support would have direct and buffering effects on international students when dealing with their academic and life stressors in the United States. This is important as they embark on a program of study in an alien educational environment. This study found a lack of correlation between social support and academic stress. Our hypothesis regarding buffering effects was supported regarding life stress but not academic stress. Findings for the aggregate sample suggest that contacts with their own culture, local community, and churches were important in reducing life stress among males more than females. However, female international students had less contact with local community/co-nationals but made more friends in the US. Perhaps the lack of contact with the local community and churches poses somewhat greater hardship for female international students because they, unlike men, have significantly greater role conflicts stemming from their cultural background. Studies show that females derive greater support from peers and our results concur (Mallinckrodt & Leong, 1992).

TABLE 2. COMPARISON OF LIFE STRESS AND SOCIAL SUPPORT OF MALE AND FEMALE INTERNATIONAL STUDENTS

	MALES		FEMALES	
	MEAN	**SD**	**MEAN**	**SD**
INDEX OF LIFE STRESS				
CONCERNS WITH FINANCE	11.46	6.44	10.70	5.61
LANGUAGE	6.82	4.21	7.60	3.98
INTERPERSONAL STRESS FROM NEW CULTURE	7.21	5.04	7.33	4.93
ACADEMIC PRESSURE	11.25	5.60	11.16	5.70
	9.60	3.62	10.36	4.55
INDEX OF SOCIAL SUPPORT				
CONTACT WITH OWN CULTURE	32.57	8.95	30.73	11.25
CONTACT WITH LOCAL COMMUNITY AND STUDENTS *	17.75	7.13	13.20	7.8
CONTACT WITH NEW FRIENDS IN THE U.S.	18.32	5.28	18.60	4.74
CONTACT WITH RELIGIOUS PLACES	7.71	5.99	6.34	6.27

* $p<0.05$

Results also showed that international students perceived stress in varying ways depending on their sex and educational level. Female students had higher stress from language difficulties, interpersonal factors, and academic pressure, while male students had more stress due to concerns with finance and adjustment to their new culture. Graduate students experienced more academic stress than undergraduate students.

A considerable mismatch occurred among faculty and students in their perceptions of students' academic and life stressors and reactions to these stressors. Faculty members perceived students to experience higher levels of stress and reactions to stress than students' own self-perceptions. This difference could result simply from faculty observing and interacting with students in the classroom and observing students during their moments of stress in the classroom. Students may experience less stress when they are away from the school environment, thus allowing them to relax and enjoy their leisure time activities. Past research has suggested that professors often misinterpret students' stress levels, and results from this study concur (Parish & Necessary, 1995).

This study was limited to self-reports and was based on a small sample in a Midwestern area.

The results should be considered in context and should not be generalized to all universities without further investigations. Our research suggests two things. First, the lack of correlation of social support and academic stress could be a characteristic of international students at all small universities and not just Midwestern universities. Secondly, researchers need to explore the underlying factors behind the adaptation processes of international students.

Conclusion

With the numbers of international students growing, academic programs, faculty, and staff can provide ways to help international students grow through the learning curve and adapt to a new culture. Results of this study provide a better understanding of the life and cross-cultural academic stress experienced by international students and have important implications for both study abroad programs and receiving institutions in terms of prior preparation, language training, recruitment policy, and program intervention.

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Osteoporosis Prevention: Importance during the "Bone Forming" Years

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Abstract

Osteoporosis is a disease that decreases bone density and makes bones more susceptible to fracture. More than 25 million Americans, of whom 80% are women, are affected by osteoporosis. Adult bone mass depends on how much bone is developed at skeletal maturity and the subsequent rate of bone loss throughout life. During the early to mid-30 years of age, bone mass reaches its peak. Research supports the view that adequate calcium consumption and weight-bearing exercise help to optimize the development of bone mass. To maximize the effectiveness of osteoporosis prevention programs in the later years of life, prevention should begin in the "bone forming" years. The challenge for educators involves determining what strategies will be effective in promoting positive lifestyle choices to prevent a disease that may begin in childhood and not manifest its symptoms for several decades.

Introduction

Osteoporosis has been defined as "a systemic skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissue, with a consequent increase in bone fragility and susceptibility to fracture" (Consensus Development Conference, 1991, p. 107). The 1991 Consensus Development Conference confirmed osteoporosis as a major cause of mortality, morbidity, and medical expense worldwide. The disease affects more than 25 million Americans of whom 80% are women. It accounts for more than 1.5 million broken bones in the United States each year. Hip fracture is responsible for much of the mortality and morbidity of osteoporosis, and it is a leading cause of disability in the aged. Anywhere from 12 % to 20% of patients with a hip fracture will die within one year of the event. The majority of hip fracture survivors are unable to perform the activities of daily living without assistance. Statistics from The PT Educator (1997, page 22) indicate that the direct (hospitals and nursing homes) and indirect (lost wages) cost of osteoporosis exceed an estimated $10 billion annually. That cost is predicted to increase to $62 billion by the year 2022.

Osteoporosis is a disease of the elderly and it is difficult to restore bone once it is lost. Therefore, prevention programs need to target children and adolescence and help them to develop optimal bone mass. Adult bone mass at any time depends on both how much bone is developed at skeletal maturity, approximately age 35, and the subsequent rate of bone loss throughout life. Most of the educational literature and programs target peri-menopausal and post-menopausal women who need to make critical decisions regarding hormone replacement therapy. Providing education to encourage healthy lifestyle habits for prevention of osteoporosis for the under 35 age group in their "bone forming" years is often ignored. Ilich, Bodanhop, and Matovic (1996) point out that in the next decade the teen population will increase at nearly twice the rate of the overall population, reaching 30.8 million at its peak in 2015. They also support the belief that teenagers should be targeted as the risk group. Preventive strategies that promote adequate calcium intake and exercise programs should be implemented to increase peak bone mass in this age group.

Bone Mass

According to Weissman (1987), decreasing bone mass is the major factor responsible for loss of bone strength. Though other factors such as poor eyesight, decreased balance, and loss of muscle control contribute to increased occurrence of fractures among the elderly, bone strength—and hence bone mass—is most important. Weissman explained that bone is composed of both cortical (compact) and trabecular (cancellous) components. Of the body's total bone mass, 80% is composed of cortical bone. This type of bone makes up the peripheral portions of bones, and it is particularly thick in the midshaft regions of long bones such as the femur. Trabecular bone is a network of bony spicules with a large surface area. The ends of long bones have a considerable amount of trabecular bone. This type of bone also makes up 60% of each vertebra in the spine. Trabecular bone is the first to be affected by metabolic bone disease such as osteoporosis.

Bone is living tissue that continually breaks down and rebuilds throughout life. Luce (1997) outlined the process known as "bone remodeling." In the resorption phase, old bone is broken down and removed by bone cells called osteoclasts. During the formation phase, new bone is created and deposited by bone cells known as osteoblasts. The balance of work between the resorption and formation phases changes at different ages throughout life.

Peters (1998) states that bone mass peaks at ages 25 to 30 for trabecular bone and at ages 35 to 40 for cortical bone.

After that time, the osteoclasts are more active than the osteoblasts, and more bone is lost than restored. Most minerals are lost in the trabecular bone. The greatest concentration of this type of bone occurs in the distal radius (forearm), femoral neck (hip), and vertebrae (spine). Most osteoporetic fractures occur in these areas of the body. The imbalance between breakdown and buildup of bone, which decreases bone density and causes the bones to be more fragile, increases the risk for development of osteoporosis.

Rodin et al. (1990) examined trabecular bone density in the spine and femoral neck of 225 Caucasian women. They found trabecular bone density increased until the mid-30's, but began to slowly decrease prior to the beginning of menopause. From these results, the researchers proposed that if bone mass can be enhanced, then peak bone density can be maximized.

According to Drugay (1997), one of the primary goals of an osteoporosis prevention program should involve development and maintenance of skeletal integrity. It has been advocated that "Building strong bones, especially before the age of 35, can be the best defense against developing osteoporosis. A healthy lifestyle can be critically important for keeping bones strong" (Florida Department of Health, 1997; p. 22). Researchers generally agree that adequate calcium consumption and weight-bearing exercise help to maximize peak bone mass. As summarized by Peters (1998), genes determine maximum bone mass potential, but what is done—or not done—throughout a lifetime determines whether maximal bone mass is reached and maintained.

Calcium Consumption

Calcium intake among women has received increased attention because a relationship between low calcium consumption and greater incidence of various diseases, including osteoporosis, has been shown. Calcium is an important mineral that gives bones strength, hardness, and rigidity. Approximately 99% of the body's calcium is stored in the bones. Calcium contributes to many of the body's processes—building bones, blood clotting, muscle contraction, enzyme activity, and nerve conduction velocity. A certain level of calcium must be maintained in the blood. If the calcium level drops, calcium is drawn from the bones to keep blood levels normal (Bone Matters, n.d.).

A 1994 Consensus Conference for the National Institutes of Health (NIH) reported that the need for calcium is largely determined by skeletal requirements. The report indicated a threshold effect for calcium intake: body retention of calcium increases with increasing calcium consumption up to a threshold, then further calcium intake causes no additional increment in calcium retention. The NIH recommended that individuals 6 to 10 years of age consume 800-1,200 mg of calcium per day, and that individuals 11 to 24 years of age consume 1,200-1,500 mg/day. Women 25 to 50 years of age were recommended to consume 1,000 mg of calcium per day and males 25 to 64 years of age were recommended to consume 1,000 mg/day. The NIH reported a positive association between life-long calcium intake and adult bone mass. Therefore, they advocated optimum calcium intake during childhood and young adulthood because it is critical to achieving peak adult bone mass. The consequences of low calcium intake during this period of rapid skeletal development prompt the concern that reaching optimal peak adult bone mass may be seriously compromised, thus placing an individual at greater risk for developing osteoporosis.

Many studies indicate women do not consume an adequate amount of calcium. Miller and Weaver (1994) found women 12 to 29 years of age consume less than 60% of the recommended daily allowance of calcium. Kasper, Peterson, Allegrante, Galsworthy, and Gutin (1994) examined the behaviors of 114 college women and found that only 17.5% met the recommended dietary calcium requirements.

Rivlin (1987) examined the habits of American women and discovered they were prone to inadequate calcium intake. In his study, he found the women's attitude toward milk consumption, a key source of calcium, had become more negative. Women had a negative attitude towards milk, perceiving it to be fattening, a drink for children, gas producing, and constipating.

Susiyanti, Chambers, and Lewis (1996) found similar results when they assessed calcium intake and attitudes toward calcium-rich foods in 18- to 35- year-old women. The researchers reported that women with high calcium intake generally drank more milk and did so because they liked milk and believed it was appropriate to drink during various situations. Susiyanti et al. concluded enjoyment of milk contributes to higher calcium intake and suggested strategies should be developed to improve the acceptability of milk or to include calcium in foods that will be consumed. Miller, Steinbach, and Jarvis (1995) also advocated determining what perceptions and concerns influence calcium consumption among teenagers as the basis for developing educational strategies to communicate the importance of dairy foods for calcium consumption.

Chang, Hoffman, and McMurray (1995) studied the changes in 9- to 13-year-old girls over a one-year period. They found that girls in the study who increased their calcium intake to recommended levels through dairy food intake recorded significantly higher gains in total body mineral and spinal bone density.

Rivlin (1987) emphasized that an adequate amount of Vitamin D is also important; this vitamin increases the amount of calcium that the body can absorb from the intestines. As, most individuals in the "bone forming" years receive ample Vitamin D through daily exposure to sunlight or from a multivitamin, this factor is not of major concern with this segment of the population.

Weight-Bearing Exercise

The role of exercise in preventing osteoporosis during the

bone forming years is best summarized by the American College of Sports Medicine position statement (1995) which makes three pertinent points: (1) Weight-bearing physical activity is essential for the normal development and maintenance of a healthy skeleton; (2) strengthening or resistance exercises also may be beneficial, particularly for non-weight bearing bones; and (3) if sedentary women increase their activity levels, they may avoid the further loss of bone that inactivity can cause and may even slightly increase bone mass.

While it is well established that a marked decrease in physical activity, as in prolonged bed rest or immobilization in a cast, results in a profound decline in bone mass, improvements in bone mass resulting from increasing physical activity are less conclusive. Researchers believe that exercises which force the muscles and bones to work against gravity (weight-bearing exercise) stimulate the build-up of bone tissue, making bones thicker and stronger (Engles, 1989). Examples of weight-bearing exercise include: running, tennis, gymnastics, volleyball, and jumping rope.

Cross-sectional studies which examined bone mineral content in subjects participating in physical activity generally supported the idea that bone mineral content increases with activities that mechanically load the bones of the body. Gunnes and Lehmann (1996) looked at the effect of weight-bearing physical activity and calcium intake in the bones of the forearms of 8- to 17-year-olds. They found that the greater the physical activity and calcium intake, the greater the trabecular bone mineral density gain in children below 11 years of age. They concluded that physical activity and calcium intake should be encouraged at a prepubertal age to increase bone density.

Uusi-Rasi et al., (1998) examined the bone mineral density of 422 women in older age groups. The women were divided into three age categories (25-30, 40-45, and 60-65) and classified according to level of physical activity and calcium intake. The high physical activity and high calcium intake group had higher total body bone mineral content when compared with the low activity, low calcium group. The bone mineral density in the femoral neck was 5% higher in the group with high physical activity, but calcium intake did not show the same association. Both high physical activity and high calcium intake were related to larger and mechanically more competent bones in the radial and femoral shafts. They concluded that a moderate level of physical activity and a sufficient level of calcium intake, if maintained from childhood, could result in considerable long-term improvements in the skeleton.

Longitudinal studies revealed similar results to the cross-sectional studies. A 1998 study by Bass et al. examined 45 active prepubertal female gymnasts and 35 controls, both approximately 10 years of age. During the 12-month study, bone mineral density of the total body, spine, and legs in the active prepubertal gymnasts was 30-85% greater than the controls. As a result, researchers felt the prepubertal years were likely to be an opportune time for exercise to increase bone mineral density.

Another longitudinal study conducted over an 8- to 12-month period was completed by Taffee, Robinson, Snow, and Marcus (1997) involving collegiate gymnasts, runners, swimmers, and non-athletic women. Their results indicated that bone mineral density at sites with a high percentage of trabecular bone, the lumbar spine and femoral neck, showed a significant increase for the gymnasts over the other athletes. The results provided support for the concept that high impact loading throughout the year increased bone mineral density in the gymnasts.

Some exceptions exist to the above findings. Marcus et al. (1985) warn that not all active, young women profit from participation in weight-bearing activity. Women endurance athletes who experience a disruption in their menstrual cycles, despite regularly exercising at high intensities, have been shown to lose bone, especially in the lumbar spine.

Behavior Change

Little research addresses how to identify factors that might influence young women to adopt an osteoporosis-preventative lifestyle. Some of the osteoporosis risk factors identified remain outside the individual's control: heredity, fair complexion, small bone frame, female, and Caucasian or Asian race. Education about the importance of controllable risk factors such as diet, weight bearing exercise, and avoidance of smoking and excessive alcohol consumption may assist in promoting healthy lifestyle changes.

Kasper et al. (1994) provided some insight into the problem. They surveyed 114 college students to assess their knowledge of osteoporosis risk factors, beliefs about the disease, and to what extent the subjects practiced preventive behaviors. Ninety percent of the students were familiar with the disease, but only 43% had received osteoporosis information from health care providers or teachers. Television provided the greatest percentage of information. The researchers found the more information received by the participants, the greater their ability to identify risk factors. Eighty-seven percent of the students identified low calcium intake and lack of exercise as risk factors, but no correlation existed with their current behavior. Only 6.7% of women reported getting both adequate "osteoprotective" exercise per week and the recommended daily calcium. Most women believed they were unlikely to develop osteoporosis. No significant relationship existed between osteoporosis beliefs (seriousness, likeliness of occurrence, and so forth) and health behaviors.

Taggart and Connor (1995) approached the situation using the Health Belief Model. In this model, an individual's recognition of susceptibility to a disease and perception of the benefits of preventive action versus perception of barriers to preventive action relate strongly to the decision to participate in preventive activities. They administered questionnaires to 113 female college-age students as to their knowl-

edge about osteoporosis, awareness of susceptibility, and motivation for general health behaviors. Age correlated positively with knowledge, personal susceptibility awareness, and motivation for general health behaviors. However, older participants perceived more barriers to exercise as a preventive measure. The Taggart and Connor study concluded that exercise programs should be included early in life and continued throughout life.

Conclusion

Research confirms that bone density increases until the mid-30s and that adequate calcium consumption and weight bearing exercise during that time can optimize the potential for increasing bone mineral density. To maximize the effectiveness of osteoporosis prevention programs in later years, so that hormone replacement therapy and early detection efforts are as beneficial as possible, prevention should begin during the "bone-forming" years. The challenge for educators involves determining what strategies will be effective in promoting positive lifestyle choices to prevent a disease that may begin in childhood and not manifest symptoms for several decades.

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Potential Contributions of the Elementary School Principal To School Health Instruction

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Abstract

Healthy People 2000, and the draft goals being developed for Healthy People 2010, focus on the benefits of prevention in promoting health and longevity (U.S. Department of Health and Human Services [USDHHS], 1991). Many of the goals focus on children and youth, suggesting an important potential role of school health instruction. While research has confirmed the benefits of health instruction for youth, few schools require health instruction or employ the personnel to deliver such programs. This article specifically addresses the potential contributions of the elementary school principal in developing and advocating for health instruction programs for youth. Barriers to realizing these potential contributions are discussed. Research is cited confirming the principal's positive impact on several curriculum areas as well.

Introduction

The health of American children has become an increasing concern over the years, resulting in formal governmental documents that specify changes desired in young people by the year 2000 (USDHHS, 1991). To meet the National Health Objectives for the Year 2000, and the extension of those goals to 2010, educators must continue to take an active role in developing, implementing, and sustaining effective prevention programs (Kann et al., 1993). In elementary schools, prevention programs often fall under the auspices of health education. However, only 9.8 percent of states require an elementary school course specifically devoted to health education (Collins et al., 1995). How, then, do we reduce the risk of unintentional injuries, improve the nutritional habits, increase the physical activity of children, and reduce the number of young children who begin smoking?

Health instruction in elementary schools can significantly reduce the likelihood that children will become involved in risky behaviors (Connell, Turner, & Mason, 1985). One barrier to making health education part of the elementary school curriculum involves lack of administrative support and commitment (Telljohann, Everett, Durgin, & Price, 1996; Butler, 1993). Little has been done to provide answers to how we can overcome the lack of administrative support and increase commitment to elementary health instruction. The number of elementary schools providing students with health instruction will not increase unless the people in charge of the school, particularly the principal, value the role health instruction plays in the education of students. This paper addresses the role principals can play in promoting health instruction in the elementary school.

The Value of School Health Education

"The leading cause of death in childhood—unintentional injuries—not only accounts for the most deaths but also is among the most preventable" (USDHHS, 1991, p. 13). Approximately 70 percent of deaths in children occur due to preventable injuries (Meeks, Heit, & Page, 1996). During these early years, children are exposed to risky behaviors. These actions are learned during youth, persist into adulthood, and contribute simultaneously to poor health, education, and social outcomes. Yet, many of the behaviors are preventable (Centers for Disease Control [CDC], 1992). For this reason, health education represents a vital area of instruction that must be included in elementary school programs.

To address the health risks of children, as well as Americans of all ages, *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* (USDHHS, 1991) were developed. The three principal goals of *Healthy People 2000* are: 1) to increase the span of healthy life of Americans; 2) to reduce the health disparities among Americans; and 3) to achieve access to preventive services for all Americans (USDHHS, 1991). To meet these goals, a number of specific objectives were developed. Specifically, *Healthy People 2000* calls for an "increase to at least 75 percent the proportion of the nation's elementary and secondary schools that provide planned and sequential kindergarten through 12th grade quality school health education" (USDHHS, 1991, p. 255). It remains to be seen how the objectives to be set for *Healthy People 2010* will relate to health education generally and to elementary health education in particular.

To help children develop lifestyles that will foster long and healthy lives, schools must develop programs which assist students in meeting the health objectives set for the nation. Kann et al. (1993) indicate that, to achieve these goals, "we as a nation must develop, implement, and sustain effective preventive interventions and share responsibility for reducing unnecessary mortality and morbidity" (p. 47). Schools have the opportunity and ability to offer and sustain comprehensive school health instruction throughout the lives of

children. However, when assessing elementary school health programs, less than 10 percent of states require a separate course devoted almost entirely to health topics. In addition, only 55.1 percent of all districts across the United States employ a school health education director (Collins et al., 1995).

With the support of administrators at the district level, as well as elementary school principals, these statistics may be greatly improved. Thus, lack of leadership at the district level may translate into health education being less of a priority, though research has proven health instruction to be vital in assuring that children grow up leading full and productive lives (Collins et al., 1995). For the health instruction occurring in elementary schools to increase to meet the *Healthy People 2000* objectives, the elementary principal must take a strong leadership role.

Administrative Barriers to School Health Education

According to Telljohann et al. (1996), several barriers contribute to the lack of quality health instruction in elementary schools. First, in terms of preservice training, only 26 states require elementary teachers to complete health education coursework to qualify for elementary certification. A second barrier relates to state-required student competency examinations. While eighty percent of schools require state testing through proficiency exams or other state tests, only 24 percent of those states include health education topics as part of testing (Collins et al., 1995). Many teachers feel pressure to prepare students for these exams; thus, they focus on subjects included on the tests. Because so few states include health on their state tests, elementary teachers may view health as an unimportant subject (Telljohann et al., 1996).

A third barrier for lack of quality elementary health instruction involves lack of administrative support (Telljohann et al., 1996). Supportive administrators can provide inservice training and health resources, help promote a focus on health instruction, and create time in the schedule for health instruction (Telljohann et al., 1996). In addition, limited inservice training also represents a barrier (Connel, Turner, & Mason, 1991). Inservice education increases the teacher's health knowledge, intent to teach health education, level of comfort, and perception about the importance of teaching the health curriculum (Levenson-Gingiss & Hamilton, 1989).

Finally, Butler (1993) surveyed Council of Chief State School Officers (CCSSO) members. The survey asked CCSSO members to rank-order barriers to implementing comprehensive health education most frequently found in the literature. The results, in rank-order, were, 1) lack of local administrative commitment, 2) lack of adequately prepared teachers, 3) lack of time in the school day/year, 4) lack of money/funds, 5) health education's lack of credibility as an academic subject, and 6) lack of community/parental support and controversial topics. Findings from this study again validate the significant contribution principals can make to school instruction.

Therefore, school administrators must become involved in the process of implementing school health instruction (Butler, 1993; Telljohann et al., 1996). Butler suggested that the attendance of administrators at inservice programs can increase administrative support for school health instruction. However, when asking State School Officers for their recommendations for overcoming lack of local administrative support, no ideas were offered. Butler concluded that barriers to comprehensive school health education changed little in the past 15 years. Consequently, efforts must be concentrated on finding solutions to the top-ranked barriers. Greater efforts must be made, focusing on the supportive role of the principal toward school health instruction.

Role of the Principal in Success in Other Content Areas

Little direct evidence exists regarding the role principals play in the success of elementary school health instruction programs. However, other subject areas have explored this issue, and health educators may benefit from lessons learned. By exploring the successes of other content areas, health educators can learn important steps and approaches to improving health instruction in elementary schools.

Reading

In a study on the role of the principal's leadership in student reading achievement, Hallinger, Bickman, and Davis (1996) asked the question, "Do principals make a difference?" (p. 528). Parents, teachers, educational policy makers, as well as researchers agreed that principal leadership is critical to the success of educational programs. However, the nature of efforts by principals in school programs remain a subject of controversy. Results from the study showed that the principal's instructional leadership had no direct effect on student achievement, but principals do have an indirect effect on school effectiveness through school learning climate efforts (Hallinger et al., 1996).

Though the study by Hallinger et al. (1996) proved useful in analyzing the role of the principal in student achievement, the findings are not generalizable to all content areas. The study was based on student achievement through standardized tests, and not all content areas are represented on standardized tests. Specifically, only some ten states include the health education content area on their state proficiency exams (Collins et al., 1995).

Technology

Similarly, principals also influence the degree of integration of technology within schools. Ritchie (1996) suggested that one critical reason why most schools have yet to implement technologies beyond the basic level involves a lack of administrative support. Ritchie further suggests eight variables that affect implementation of technology programs. How-

ever, "lack of administrative support may be the most critical, for without the commitment of a school administrator, the likelihood is increased that one or more of the other seven variables will negatively influence technology adoption and implementation" (Ritchie, p. 43).

School administrators may be reluctant to acknowledge the benefits of educational technologies because most completed their formal education before computers were integrated into the educational setting. Similarly, many current school administrators did not receive the type of health instruction offered today, which may result in reluctance to support these programs. Therefore, it is imperative that school principals keep current in the practices vital to the success of school health education programs and become involved in ongoing professional development related to health instruction.

Ritchie (1996) identified five ways which administrators gain technology experience: self-instruction, vendors, school personnel, consultants, and external courses. Of the five methods, the most cost effective, unbiased, and comprehensive approach may be structured courses designed for school administrators (Ritchie, 1996). It could prove significant to a variety of content areas to look deeper into the issue of specialized courses designed for school administrators.

Physical education

In research specific to physical education, Butler and Mergardt (1994) found "gaining administrative support for physical education was a pivotal factor in building and maintaining programs" (p. 43). Through interviewing principals about how support for physical education evolved, many replied "the teachers earned it" (Butler & Mergardt, p. 43). They found that a quality physical education program was a prerequisite to gaining administrative support (Butler & Mergardt, 1994). While valuable, this research may not apply directly to the elementary health education program. In most situations, the classroom teacher provides the health instruction, rather than a health education specialist. In addition, high quality health education programs do not currently exist in most elementary schools and, therefore, cannot become a prerequisite for administrative support (Telljohann et al., 1996).

Foreign language

Johnson and McCullough (1994) examined the role of administrators for effective language programs. They suggest the principal may view foreign language as a problematic fringe in the curriculum that creates scheduling and staffing problems. The researchers described foreign language as an integral part of the curriculum, and suggested a number of ways principals can ensure high quality language programs at the secondary school. For example, implementing a language program at the elementary and middle level schools can improve quality. Similarly, if support for health instruction is expressed by other administrators in the district, the value may be seen by those implementing programs for younger children (Johnson & McCullough).

Science

Daugs, Talbot, and Klag (1988) cite the principal as one of the most important, yet least considered factors in promoting effective elementary science education in schools. They concluded that "principals need to realize that they are in a position to make significant changes in the way science is perceived and taught in schools" (Daugs et al., p. 46). To support this claim, the researchers asked the question, "What can be done to make science a basic in the education of every student?" (Daugs et al., p. 47). They visited schools where principals contributed in special ways to outstanding science education programs. In these schools, the principals possessed behavioral traits that enabled them to serve as streng role models and leaders in their schools, particularly with the science programs.

Instructional leadership was one of the ten roles exhibited by principals involved in the research. Daugs et al. (1988) ultimately concluded that "effective schools have strong principals who take an active interest in instruction" (p. 47). These principals model the kind of instruction they expect of their teachers (Daugs et al.). The way in which science education programs are implemented in elementary schools may relate directly to health instruction, since health education is often included in the science curriculum.

Potential Contributions of Principals to Elementary Health Instruction

While research says little directly about the influence of elementary school principals on health instruction, it confirms the positive contributions principals make to the success of other content areas. Health education may benefit from applying similar techniques. The following summarizes potential contributions of principals to program success, specifically applied to health instruction:

1. Provide a clear vision of the purpose of the school.
2. Develop a school learning climate that values health instruction.
3. Become involved in professional development activities related to health instruction.
4. Gain support from other district administrators who value health instruction.
5. Become a role model of health for students and staff. Visit classrooms and model skills in decision-making, reading a food label, or other health-related activities.
6. Make a commitment of time in the school day for health instruction.
7. Support health instruction by providing teacher training, financial support, and instructional resources.
8. Provide opportunities for teacher collaboration, team building, and coordination of health instruction.

9. Encourage media specialists to acquire materials that are content specific, age and developmentally appropriate.

10. Provide opportunities for teachers to learn how to integrate health with other content areas.

Conclusion

When looking at implementing or maintaining a school program, principals must acknowledge the crucial role they play in the process. Kanpol and Weisz (1990) summarized this idea by stating, " A leader *cannot* effect instructional change without understanding the kinds of content and meanings conveyed to students" (p. 16). In addition, it is important to remember that the principal is the *first teacher* among professional peers. "The principal is the one, by virtue of perspective, attitude, information, and one-to-one access to each person in the school, who teaches by modeling, by conversation, by question, by encouragement, and by resourcing" (Hill, 1990, p. 8). These qualities must be applied to all school programs, specifically elementary school health education.

Research confirms that quality health instruction, particularly when begun early in life, can reduce the likelihood that young people will engage in health risk behaviors, supporting the potential benefits of health instruction for elementary school children. Research also confirms the critical role principals play in promoting academic achievement and successful school programs. As stated by Nelson (1988), "If health education is to be an integral part of the school program, the principal must have a commitment to insure that it becomes an essential part of the school curriculum" (p. 34).

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Mexican-Americans and Diabetes: Factors Influencing the Prevalence of Diabetes According to the PRECEDE Model

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Abstract

The Mexican-American population is the fastest growing subgroup of the Hispanic population in the United States. Diabetes has become an epidemic among Mexican-Americans and is a major health concern. The PRECEDE portion of the PRECEDE-PROCEED model is used in this paper as a basis of examining the factors that contribute to the high incidence of diabetes among Mexican-Americans. Such factors involve knowledge and beliefs, the availability and accessibility of health resources, and the influence of family. These and other components, in conjunction with diabetes, place this community at high risk. Suggested program implementations and services are provided.

Introduction

Diabetes is a disease characterized by the body's inability to use sugar properly. There are two forms of diabetes: Type I (insulin-dependent) occurs in children and Type II (non-insulin dependent) occurs mostly in adults. According to the U.S. Department of Health and Human Services (1993), about 31% of Hispanics suffer from diabetes and 22% consist of Hispanic adults with Type II (non-insulin dependent) diabetes. However, different Hispanic subgroups have different rates of diabetes. About 25% of Puerto Ricans, 24% of Mexican-Americans, and 15% of Cubans have diabetes (U.S. Department of Health and Human Services [USDHHS], 1993).

Diabetes in Hispanic Americans is a serious health challenge because of the increased prevalence of diabetes in this group and the growing population of Hispanic ethnicity in the United States (National Institutes of Health, 1995). It is projected that Hispanics will become the largest minority by the year 2000. Currently, they represent 10% of the U.S. population and by the year 2050 will constitute 21%. Mexican-Americans, of the total population, represent the largest Hispanic subgroup. This population growth, combined with the increased incidence of diabetes, underscores the urgency of identifying and addressing the healthcare needs of Mexican Americans (Schwab, Meyer, & Merrell, 1994).

The PRECEDE portion of the PRECEDE-PROCEED model aids in exploring the multiple factors that contribute to the prevalence of diabetes among Mexican-Americans. The first four phases are examined here. Phase One, Social Diagnosis, identifies social indicators such as absenteeism, performance, and self-esteem. Phase Two, Epidemiological Diagnosis, involves vital indicators and dimensions that describe such factors as mortality, incidence, and distribution. Phase Three, Behavioral and Environmental Diagnosis, includes elements of specific behaviors and living conditions. Examples of behavioral indicators and dimensions are compliance, self-care, and persistence.

Environmental indicators and dimensions may address services and affordability. Phase Four is called Educational and Organizational Diagnosis, which includes predisposing factors that examine an individual's mind set. Reinforcing factors identify persons who have the potential to influence such as family, peers, and community leaders. Enabling factors can include such influences as the availability and accessibility of health resources. This portion of the model "takes into account the multiple factors that shape health status and helps the planner arrive at a highly focused subset of those factors as targets for intervention" (Green & Kreuter, 1991, p.22). The PRECEDE model helps to better understand and address the target population's problems.

Quality of Life

Social indicators, according to Phase One of the PRECEDE model, examine a community's quality of life, which seeks to define priorities and problems. Quality of life issues are represented within the Mexican-American community. Hostility is a concern reported through a personal story. One man shared the following, "I was so tired of constantly poking my finger and checking my sugar. It got me angry, so I took the machine [glucometer] and threw it..." (Eid and Kraemer, 1998, p.393). Alienation is also a concern because diabetics feel deprived of eating certain foods (Figure 1). Eid and Kraemer state that "anger is evoked by not being able to eat the foods they like or not being able to drink alcohol" (p.393). It is also an inconvenience to change the entire family's meal plan to accommodate a diabetic appropriate diet (Lipton, Losey, Giachello, Mendez, & Girotti, 1997). In many Mexican-American families, the matriarch of the family cooks the meals and every member of the family is expected to eat.

Behavior

Behavior also plays a role in the management of diabetes among Mexican-Americans. Many tend to ignore the warn-

ing signs and symptoms, which may include frequent urination, frequent infections that are slow to heal, and numbness in the hands and feet (Figure 1). These signs, if left undiagnosed and untreated, eventually lead to complications such as kidney failure, blindness, and cardiovascular disease (CVD), among many others (Martinez, 1993). A study conducted in San Antonio, Texas, found that 60 percent of diabetes-related blindness could have been prevented with proper treatment, as could 51 percent of kidney failures, and 67 percent of diabetes-related amputations of the feet and legs (USDHHS, 1993).

Intake of foods high in fat and cholesterol also increase the risk of diabetes and its related complications. From a nutritional standpoint, the Mexican-American diet offers many advantages, but some ingredients can cause people to become overweight, making them more susceptible to diabetes (Avant, 1995). Fatty foods are served at many traditional dinners and events. Most meals consist of fried foods such as red meat, beans, tortillas, rice, and potatoes. Unfortunately, the Mexican-American diet includes a preference for high-fat meats and stovetop cooking (stewing or frying) with liberal amounts of oil and lard (Avant, 1995).

Environment

Environment may refer to external factors such as culture and tradition, which can modify health. For example, traditionally the Mexican-American diet consists of high fat foods, which can lead to serious health problems. However, the degree and extent to which culture and tradition influences a community varies from person to person (Martinez, 1993). An individual within an ethnic culture should not be generalized based upon their ethnic environment. Therefore, not all Mexican-Americans follow the cultural and traditional diet. This variable is known as acculturation, "the extent to which a person assumes the traits of the American mainstream culture, versus those of the traditional Mexican culture" (Schwab, et al., 1994, p.224). Thus, a less acculturated person is one who has retained strong traditional ethnic beliefs and practices (Martinez, 1993).

As health educators, we should become more culturally aware, sensitive, and competent in working with ethnic populations. Like any ethnic group, Mexican-Americans represent people with characteristics that define their individual uniqueness.

Predisposing Factors

Predisposing factors include cultural-specific norms and attitudes about diabetes held by Mexican-Americans. According to Smith and Weinmen (1995), Mexican-Americans culturally encourage the use of home remedies and non-medically endorsed health-care professionals (Figure 1). This type of practice can lead to misdiagnosis and complications. Their attitudes and lack of awareness about the seriousness of the disease may prevent them from seeking professional medical attention. Mexican-Americans tend to downplay the seriousness of their disease and believe that their illness is "God's will." Smith and Weinman (1995) reported that many Mexican-Americans believe in fatalism, a belief that all events are determined by fate and cannot be altered (Schwab, et al., 1994). These attitudes can delay treatment and increase the risk of complications. All Mexican-Americans, however, do not share these views.

Reinforcing Factors

Reinforcing factors involve family influences and doctor-patient relationships (Figure 1). Hispanic Americans tend to turn to family members for support in times of need. Family may consist of extended members such as aunts, uncles, grandparents, and cousins. The family system can be used as an advantage by teaching family members about diabetes. Thus, their knowledge can influence the attitude and actions of the family member suffering from diabetes. In most Mexican-American cultures, family plays a major role in everyday life. Lipton, Losey, Giachello, Mendez, & Girotti, (1997) asserts that families may provide valuable reinforcement and emotional support, and may play an essential role in treatment.

Language and cultural differences pose barriers to a healthy doctor-patient relationship and affects the type of feedback received. Patients may feel uncomfortable in the presence of a doctor, because of their inability to express or understand certain concepts or terms. Martinez (1993) reports that "patient non-adherence to prescribed diabetic regimens may be owing to misunderstandings or lack of comprehension when language is a barrier (p. 93)." At this junction, a translator may be of help, but medical professionals should be aware that not all Spanish words translate into English. If a translator should be utilized, it should be a family member. This makes the patient feel more comfortable and also increases the knowledge of the disease among family members.

The doctor-patient relationship may also experience issues of cultural misinterpretation. Physicians may find patients who exhibit a lack of interest about their illness. However, Lipton et al. (1997) notes that respect for medical personnel may prevent patients from asking questions or clarifying medical instructions.

Enabling Factors

Enabling factors are barriers and include a lack of financial resources and the availability of appropriate diabetic foods (Figure 1). Low socioeconomic status (SES) and health insurance coverage is a major predictor of untreated diabetes among Mexican-Americans (Pendergrast, 1993). The Hispanic Health and Nutrition Examination Survey (HHANES) findings suggest that a lack of health insurance may translate into a lack of medical care for many Hispanics because

37% of Mexican-Americans are uninsured (USDHHS, 1993). Therefore, services used are more likely to be limited to use of county hospitals and emergency rooms. The cost of diagnosis and treatment continuously places a financial strain on families. Eid and Kraemer (1998) indicate that the "cost of office visits, medicine, and supplies are common concerns of the uninsured" (p.93). In addition, the availability of high fat foods increases obesity and the risk of diabetes (Haffner, 1995). Often, convenience stores in low SES communities do not offer healthy food choices such as fresh fruits and vegetables, and high-fiber foods.

Implications of Program Implementation and Services

Existing diabetic programs and organizations today promote awareness, wellness, and maintenance of diabetes. For example, the National Diabetes Education Program (NDEP), in collaboration with Hispanic organizations and the Centers for Disease Control and Prevention (CDC), helps to increase public awareness of diabetes and promote self-management among persons with diabetes (Morbidity and Mortality Weekly Report [MMWR], 1999). Likewise, community-based health educators should extend these elements and other elements such as cultural awareness and sensitivity, when working with specific communities.

Diabetic programs can distribute and disseminate information about diabetes and free testing to Mexican-Americans by mail, with pamphlets written in Spanish. Public service announcements (PSAs) on Spanish television and radio can also be created. However, health educators should be cautious so pertinent information is not lost or misinterpreted during translation. A solution might be to utilize the concept of "back translation." Materials developed through the "back translation" process represent literal translations of their English counterparts (Martinez, 1993). The process involves translating English into Spanish, then translating Spanish back into English. This technique allows health educators the chance to determine if vital information was lost in the initial translation. Educational materials successful in conveying reliable information are those designed via "back translation" method versus the "forward translation" approach directly from English to Spanish (Martinez, 1993).

As a service to high risk communities suffering from diabetes, such as Mexican-Americans, interpersonal services should be provided. This would allow health educators and other medical professionals the opportunity to truly understand the community's problems. For example, patients can be assigned to a nutritionist, who would assist them with making healthier food choices. Programs can also collaborate with local grocery stores to make brochures available to help diabetics make appropriate choices for their diets. These programs and services will provide Mexican-Americans, as well as other communities suffering from diabetes, a better chance of treating, maintaining, and understanding diabetes.

Conclusion

Diabetes among the Mexican-American community has become an epidemic. For some, lack of knowledge, understanding of the disease, finances, and resources only add to the existing problem. As health educators, we should implement programs that stress the importance of preventative care. Effective programs need to include community gatekeepers such as education leaders, parent and teacher groups, clergy, politicians, and the individuals that make up the community. These components and others discussed are essential in decreasing the percentage of diabetics within the Mexican-American community.

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Tobacco Policy in the United States: Past and Present Directions

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Abstract

Tobacco use is a national health problem affecting all Americans. Loss of money, productivity, and health resources related to tobacco use make this an issue of concern for government. The government has joined the fight against tobacco in several ways, namely, enacting policies to reduce tobacco use among Americans. In order to understand future trends with respect to tobacco policy, it is important to examine past and present perspectives on the issue. From a policy approach, reasons and rationale for federal regulation of cigarettes have varied throughout the course of history. In the period immediately following the release of the first Surgeon General's Report in 1964 that established a causative link between smoking and lung cancer, strategies were based on the belief that smoking was a voluntary risk. Emphasis was placed on educating smokers regarding the risks of tobacco use (Gostin, Brandt, & Cleary 1991). In the last decade, the idea of smoking as a voluntary risk has been questioned. Factors including health risks to others, the addictive quality of nicotine, marketing of tobacco to youth, and industry knowledge about the harmful effects of tobacco are currently being used as a justification for increased regulation of tobacco (Gostin, Arno, & Brandt 1997).

Introduction

Tobacco is a leading cause of death in the United States. Statistics from the American Cancer Society indicate that one in five American deaths each year is caused by tobacco use, and the annual American death toll from tobacco-related illnesses is approximately 419,000 lives. An additional 60,000 people die from exposure to environmental tobacco smoke (American Cancer Society, 1998). Causal relationships exist between tobacco use and the development of cardiovascular diseases, lung cancer, chronic obstructive pulmonary disorder, and tumors of the mouth, larynx, esophagus, lip, and bladder (Richmond, 1996). As a result, tobacco use is an issue of primary concern for public health (http://www.cancer.org, 1998).

Tobacco use drains the U.S. economy by more than $100 billion per year. Health care expenditures attributed directly to smoking totaled $50 billion in 1993. Forty-three percent of these costs were paid by government funds, including Medicaid and Medicare. Tobacco use kills Americans in the prime of life. An estimated 27 percent of Americans, who die between the ages of 35 and 64, die of tobacco-related diseases, losing an average of 20 -25 years of life expectancy (Centers for Disease Control and Prevention, 1994, p. 7). At the same time, lost economic productivity caused by smoking cost the U.S. economy $47.2 billion in 1990 (Office of Technology Assessment, 1994). Lost productivity includes lost wages and lost workdays due to tobacco-caused illness. Adjusted for inflation, the total economic cost of smoking is more than $100 billion per year (http://www.cancer.org, 1998).

In the United States, approximately 27.5% of men and 23% of women continue to smoke (http://www.cancer.org, 1998). The present and future loss of life, productivity, and health care resources related to tobacco use has prompted the inclusion of several objectives related to tobacco use in Healthy People 2000, the heath objectives for the year 2000 set by the government to improve the health status of Americans (Novotny, Romano, Davis, & Mills,1992). One of the most important objectives is to "reduce cigarette smoking to no more than 15% among people aged 18 and older" (Healthy People 2000, p.5). According to projections based on National Health Interview Surveys from 1974 through 1985, the prevalence of smoking in the adult population will be 22% by the year 2000 (Pierce, Fiore, Novotny, Hatziandreau, & Davis, 1989). While these rates are at an all time low, they fall short of meeting the Healthy People 2000 objective of 15% (Pechman, Dixon, & Layne, 1998).

Efforts to achieve a reduction in levels of smoking have taken several different approaches. From a policy standpoint, reasons and rationale for federal regulation of cigarettes have varied over the course of history. In the period immediately following the release of the first Surgeon General's Report in 1964 that established a causative link between smoking and lung cancer, strategies were based on the belief that smoking was a voluntary risk. Emphasis was placed on educating smokers regarding the risks of tobacco use (Gostin, Brandt, & Cleary 1991).

In the last decade, however, the idea of smoking as a voluntary risk has been brought into question. Factors including health risks to others, the addictive quality of nicotine, marketing of tobacco to youth, and industry knowledge about the harmful effects of tobacco are now used as a justification for increased regulation of tobacco (Gostin, Arno, & Brandt 1997). To understand the current state of tobacco policy, it is important to look back at its history.

Historical Tobacco Policy Perspective

Since the early 1900's, tobacco companies have continu-

ally struggled for control and independence while the federal government has increasingly focused on regulation and restriction. Some of the relatively weak regulatory control the government presently exerts over the tobacco industry can be traced back to tobacco companies' early efforts to gain legislative independence (Gostin et al., 1997).

The period from the early 1900's to the mid 1980's was characterized by tobacco policies that have both intentionally and unintentionally strengthened the power of the tobacco industry. In 1905 tobacco was eliminated from the *Pharmocpeia*, thus removing it from the purview of the Food and Drug Act of 1906. Because it was not classified as either a food or a drug, it fell outside the realm of regulatory legislation over which Food And Drug Administration (FDA) had control (Arno et al., 1996). For several decades to follow, the tobacco industry trend was successfully avoiding anti-tobacco legislation. In 1965, the Cigarette Labeling and Advertising Act requiring warning labels on cigarette packs was passed. The Federal Trade Commission required that the warning "cigarette smoking may be hazardous to your health" be prominently displayed on packs of cigarettes. While on the surface this legislation appears to be a victory for opponents of tobacco use, it also unwittingly assisted the tobacco industry. After the federal labeling requirements were put into effect, tobacco companies were increasingly protected from the "failure to warn" tort litigation (Gostin, 1991). This was evidenced in a Supreme Court decision in the case of *Cipollone v Ligget Group* in which a husband and son of a smoker who died of lung cancer unsuccessfully sued a tobacco corporation for "failure to warn" about the danger of tobacco use (Garner, 1996).

Another inadvertent victory was handed to the tobacco industry by the federal government as a result of the 1970 Public Health Cigarette Smoking Act. One critical component of this of this legislation placed a ban on advertising cigarettes via television and radio. Unfortunately, due to the Federal Communications Commission's "Fairness Doctrine," many of the free public service announcements about the danger of smoking were also required to be withdrawn in order to be "fair" to the tobacco industry (Arno, Brandt, Gostin, & Morgan, 1996).

Three more pieces of legislation were passed during the 1970's, resulting in a direct benefit to the tobacco industry. In 1970, the Controlled Substance Act failed to include tobacco as a controlled substance. Two years later Congress enacted the Consumer Product Safety Act, and yet again tobacco was left out of another important definition. This time, tobacco was not listed as a consumer product. In a similar manner, the Toxic Substances Act of 1976 excluded tobacco from its definition of a chemical substance. Each of these provisions provided protection for tobacco from regulation by the FDA. Perhaps, one of the only successes during this time period came in 1984 when Congress passed more stringent labeling laws which required the four rotating warning labels that are still used today. Overall, from the beginning the 20th century until the mid 1980's, tobacco companies successfully eluded government regulation (Arno et al., 1996).

Current Policy Perspective

The stance taken by the federal government from the mid 1980's to the present notably changed from the tobacco as a voluntary risk point of view (Gostin et al., 1997). For decades, tobacco companies staunchly defended their claims that no conclusive evidence proved smoking caused diseases such as cancer, nicotine was not addictive, that they did not market to children, and they were committed to determining the scientific truth about the effects of tobacco. Ironically, the release of the Brown and Williamson Tobacco Corporation documents in 1994 provided extensive support to prove that these claims were undeniably false (Glantz, Barnes, Bero, Hanauer, & Slade, 1995). In fact, documents from Brown and Williamson Tobacco Corporation indicated that as early as the 1960's, the tobacco industry concealed findings which failed to support the safety claims of their product. These findings were an impetus for the government to change its focus from education related to the voluntary risks associated with smoking to a concern for safeguarding the public health, protecting children and adolescents, and conserving public resources (Gostin et al., 1997). Policies and legislative actions are and will continue to be vital force in refocusing tobacco use as a public health problem, rather than an individual behavior problem (Novotny et al., 1992).

From mid-1980's to early 1990's, regulatory attention concentrated on the harms associated with passive smoking. Prior to this time, state legislation restricting smoking in public places was relatively sparse. As of 1990, 45 states and the District of Columbia enacted laws which restricted smoking in public places, known as Clean Indoor Air Restrictions (Novotny et al., 1992). In 1990, Congress banned smoking on all domestic flights (Arno et al., 1996). Perhaps the most significant federal legislation, however, has occurred in the latter half of this decade (Gostin et al., 1997).

In 1996, the FDA issued regulations that restrict the sale, distribution, promotion, and advertisement of nicotine containing cigarettes and smokeless tobacco to minors. The four most important restrictions imposed by this legislation include:

- Restriction to black and white text only advertisements, unless it is an adult only facility or a publication that has an 18 and above readership of 85% or more. Audio advertisements are limited to words only with no sound effects or music, and video advertisements must have a static black text. The advertisements must all contain a statement that this product is a nicotine delivery device.
- No outdoor advertisements on billboards, posters, and placards within 1000 feet of a playground, elementary school, or secondary school.

· The sale, distribution, or offering of non-tobacco products (i.e. T-shirts, hats, posters) that advertise tobacco products using logo, symbol, motto etc. related to tobacco is prohibited.

· Manufacturers, distributors, and suppliers of tobacco cannot sponsor sporting or other events using a brand name, logo, or other symbol linked to cigarettes or smokeless tobacco (Gostin et al., 1997).

Tobacco companies did not passively accept these restrictions on advertisement. Rather, they used the legal system at state and federal levels to plead their case. While regulations regarding tobacco legislation exist at the federal, state, and local levels, they tend to become progressively restrictive as they reach the local law level. Tobacco companies have used the legal defense of preemption. Preemption implies that all laws with preemption clauses will be considered in a hierarchical order (federal laws supercede state laws and state laws supercede local laws). Tobacco companies ensure that a preemption clause will occur by supporting weak state legislation related to tobacco that includes a preemption clause. Using this approach, they can restrict the relatively more stringent laws imposed by local government. This tactic has made enacting strong tobacco control policies at the local level increasingly difficult (Samuels & Glantz, 1991).

Tobacco companies and their advertising agencies have also protested the restrictions related to advertising on the grounds that their First Amendment Rights of freedom of speech and expression have been violated. The city of Baltimore, Maryland was the first city to generally prohibit billboards displays related to tobacco. The owner of most billboards in the area, Penn Advertising, sued on the grounds that their First Amendment Rights were violated. The federal district court, however, decided that the regulation on billboard advertising was acceptable. Restrictions on advertising will continue to be challenged. In order to prove that their First Amendment Rights have been violated, companies who challenge the laws restricting advertisement must pass the difficult Central Hudson test. Four questions are asked by the courts to determine the states' authority to prohibit certain tobacco advertisement:

· Does advertising serve an illegal end or is it misleading? If so, then the advertising is not protected by the First Amendment under any circumstances. If the answer to that question is no, then the court proceeds with the following questions:

· Whether the government interest in regulating the advertising is "substantial",

· Whether that interest will be directly advanced by the restriction regulation, and

· Whether the restriction or regulation is "not more extensive than is necessary to serve that interest." Each of the three questions must be answered with a yes in order to be considered for protection under the First Amendment (Garner, 1996).

Another important piece of legislation began taking shape in April of 1997 when the tobacco industry began serious negotiations with the states attorneys general who had filled a collective suit in order to regain Medicaid funds spent of the treatment of tobacco related diseases. The result of a long and arduous battle between the states and tobacco industry was announced in June of 1997 in the form of a comprehensive national settlement. The tobacco companies agreed to:

· Make restrictions including advertising and marketing restrictions,

· Comprehensive restrictions on youth access to tobacco products,

· Tougher health warnings,

· A $500-million-per-year public education campaign,

· Smoking cessation assistance,

· Regulations against environmental tobacco smoke,

· Recognition of the authority of the FDA over tobacco products,

· Substantial penalties if tobacco use among children did not decrease to specified levels,

· Tobacco companies agreed to drop court challenges to FDA regulation over tobacco products,

· Approximately $365 billion was set aside for federal public health programs and related activities,

In return the state attorneys general agreed to:

· Settle their individual state law suits and all pending private class action suits,

· Limits on future law suits,

· Protection for the tobacco industry against prospective class action suits and punitive damages and an annual cap on the amount the industry was forced to pay in punitive damages (Akhter, Myers, Seffrin, & Wheeler, 1998).

At first this bill may seem quite generous, but tobacco control advocates are quick to point out major areas of concern with this settlement. The primary problem deals with the cap on liability being extended to the tobacco industry. A cap on liability is a limit on the damages the industry can be held liable for in a given year from any lawsuits. The result of a cap on liability will be industry immunity from lawsuits. Once a cap is reached in any given year, no other plaintiffs can collect damages from the industry, even if their lawsuits are successful. The tobacco industry will be afforded predictability about its total products liability exposure. Opponents of the settlement argue that caps on liability allow the industry to factor the costs of liability (which will be no larger than the given cap amount) into overheard costs and ultimately pass the charges to the consumer (http://www.no-smoke.org, 1998).

Another issue which warrants consideration is that of offering the tobacco companies any sort of deal. Considering the industry's less than ethical behavior in the past, the question that must be posed: "Is it fair to offer the tobacco industry relief from liability while companies who make heart valves and other life saving technologies are not offered this sort of immunity?" (http://www.acsh.org, 1998). It appears that many

important repercussions related to the settlement were not take into account.

In order to address some of these oversights, during the 105th Congress a number of bills regarding a comprehensive tobacco control policy were introduced. The one touted as having the most potential for a national policy was introduced by Senator John McCain, R-Ariz. The National Tobacco Policy and Youth Smoking Reduction Act would be much more comprehensive than the National Comprehensive Tobacco Settlement of the previous June. The legislation sought to sharply reduce rates of teen smoking and tobacco related illness, alter the way tobacco products are regulated in the United States, and cost the tobacco industry approximately $500 billion over a 25- year period. More specific provisions of the legislation were:

· Imposing an all time record high federal price hike on cigarettes —$1.10 per pack over five years. This would impose fines on the tobacco industry that it in turn would pass on to tobacco consumers.

· Provide the FDA with extensive authority to regulate tobacco products, including the placement of marketing restrictions on the industry that would ban tobacco billboards within 1,000 feet of schools and eliminate the use of cartoon characters and color in cigarette ads.

· Impose strict penalties on tobacco companies that do not achieve agreed-upon reductions in youth smoking.

· Settle lawsuits brought by more than 40 state attorneys general against the industry and limit the industry's liability in future lawsuit to $6.5 billion a year (http://www.policy.com, 1998).

In April of 1998, the Senate Commerce Committee sponsored the McCain Bill (Akhter et al., 1998). After a month of debate, the Senate decided on June 17th to remove the National Tobacco Policy and Youth Smoking Act form the floor. The bill's advocates were seven votes short of achieving the 60 votes needed to allow the bill to remain on the floor for further consideration. McCain's bill was criticized for having too many amendments which strayed form its primary purpose (American Public Health Association, July 1998). The 105th session of Congress would not be the time when a national comprehensive tobacco control legislation was passed (Akhter et al., 1998). While the McCain Bill was more restrictive than the initial settlement, it was evident to many, including President Clinton, that stricter regulations were needed (Akther et al., 1998). The American Public Health Association has established eight guiding principles for national tobacco control including:

· Significant increases in the excise tax on tobacco products

· Restrictions on tobacco advertising targeted to children and adolescents

· Full FDA authority to regulate tobacco and tobacco products coupled with a guarantee of adequate funding for tobacco control programs of the FDA, CDC, and NIH

· Full disclosure of tobacco industry documents

· No preemption of state or local laws or regulations

· International tobacco control efforts

· No special legal protections for the tobacco industry

· Economic assistance to tobacco growers as the tobacco industry is downsized (American Public Health Association, March 1998).

Implications for Health Educators

The national shift to a comprehensive approach to tobacco control provides several opportunities for health educators to use their knowledge and expertise toward reduce rates of smoking in the United States. The Campaign for Tobacco-Free Kids, a national advocacy organization committed to reducing rates of smoking among American youth, outlines several provisions made in the settlement that may potentially involve health educators:

· Public Education/Counter Advertising - Tobacco companies must contribute $300 million a year for five years to a newly created national foundation for the purpose of establishing a public education program. These monies may be available in the form of grants to individual agencies or academic institutions. Health educators should do their best to remain abreast of funding opportunities related to tobacco education for the public.

· Research - Twenty-five million dollars annually will be provided to a newly created national foundation that will conduct research related to tobacco and other substance abuse. A complaint voiced by health educators is the difficulty of proving prevention really works. Lack of funds to conduct evaluations has been used as justification for not assessing programmatic impacts and outcomes. The allocation of millions of dollars earmarked for tobacco use research may be one way to alleviate this problem. Again, health educators should stay aware of funding sources to conduct research in the area of tobacco use.

The organization further recommends that any comprehensive tobacco program should include additional components such as community based programs, cessation assistance, and school based programs (Legislative Update, 1999). These are areas health educators have been working in for years (Rubinson & Alles, 1984). The tobacco settlement would be an ideal time for health educators to use their knowledge and experience to make a difference in the health of the public and make a name for health educators in the field of public health.

Conclusion

In the United States, tobacco use is responsible for more deaths than those due to AIDS, alcohol, car accidents, fires, illegal drugs, homicides and suicides combined (http://www.cancer.org, 1998). Initial efforts to control tobacco from the 1900s to the mid 1980s proved relatively ineffective, and in many ways it the placed tobacco in a powerful posi-

tion. Beginning with the tighter regulations during the 1990s, and further assisted by the release of the Brown and Williamson Tobacco Company documents in 1994, however, the tobacco stronghold has begun to decline. While the national comprehensive tobacco settlement was a step in the right direction, the defeat of Senator McCain's bill was a giant step backward. In order to achieve the Healthy People 2000 objective of a 15% smoking rate among adults in the United States, strong tobacco policies must be enacted.

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Creatine: An Emerging Concern Regarding Sport Supplements

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Abstract

Use of creatine, an ergogenic supplement claimed to enhance athletic performanc has increased dramatically not only among trained athletes but with individuals more casual about their exercise. The increase affects not only college and professional athletes, but high school and younger athletes as well. Results from initial creatine studies seem promising with respect to increases in strength and muscle mass. Yet limited information exists to confirm whether or not creatine affects actual performance. Likewise, important questions regarding appropriate dosing levels, potential drug interactions, and long-term side effects remain unanswered. Under Food and Drug Administration guidelines, anyone of any age may legally purchase any dietary supplement. This lack of regulation, combined with unrestricted use of creatine by college and professional athletes, challenges educators in teaching youth about potentially harmful consequences from its use. Educational programs should be developed to provide students, parents, and school personnel with sufficient information to make informed decisions about creatine use.

Background

Use of creatine, an ergogenic supplement claimed to enhance athletic performance, has increased dramatically not only with highly trained competitive athletes but with individuals more casual about their training. Not only is creatine supplementation a current craze among college and professional athletes, but younger individuals are using it as well. Currently any individual, regardless of age, may purchase any dietary supplement without a prescription. Creatine and another popular substance, androstenedione, are currently considered dietary supplements by the Food & Drug Administration (FDA). While the FDA attempts to close this loophole, these products' popularity has reached an all time high.

The Physiologic Basis for Creatine Use

The theory supporting effectiveness of this supplement appears persuasive, at least initially. During anaerobic respiration, adenosine triphosphate (ATP), the universal energy carrier of a cell, serves as the body's energy source. Creatine is stored in the muscle cells as creatine phosphate (PCr) (Fox, 1993). During short-duration maximal exercise, the following creatine kinase reaction plays a role in ATP production:
ADP + PCr + H_ATP + Cr

In this physiologic reaction, the limiting agent is PCr. Most people consume only 1 to 2 g of creatine in their daily diets, with individuals who consume large amounts of red meat ingesting more. Thus, logic suggests that if the PCr stored in muscles was increased, then not only would an increase occur in available anaerobic energy, but the body would recover quicker due to lower levels of lactic acid produced. This physiological premise led to experimentation with oral creatine (Toler, 1997). In the competitive world of sports, the theoretical benefits of creatine supplementation to sprint events (swimming & track) led to experimentation in this area.

In determining required amounts of ingested creatine needed to increase total muscle concentration, researchers extrapolated that this process would be accomplished in two phases: loading and maintenance. The loading phase consisted of 20g of Cr for five days, which allows for a significant increase in total creatine. The maintenance phase consisted of ingesting 2g per day. This low dose maintenance phase proved sufficient to maintain the original results from the loading. Also, consuming 3 g per day for 28 days would achieve the same level of concentration as was achieved in the five-day loading period (Hultman, Soderlund, Timmons, Cederblad, & Greenhaff., 1996). In addition, ingestion of 2g daily without the initial loading period had no effect on total muscular creatine (Thompson et al., 1996). Consequently, an individual would load for five days, take the maintenance dose for 4 weeks, and then cycle off creatine for 4 weeks. This process, called cycling, is used due to the body's tendency to become accustomed to the ingested creatine and to stop retaining it in the blood.

In making recommendations for the use of creatine, one must understand the goals of the individual in question. If the individual desires an increase in anaerobic performance and recovery time (i.e., power lifters), then creatine appears potentially beneficial. However, if the activities are more aerobic in nature, then no link exists to enhanced performance. Currently, the product is advertised as a weight gaining aid, which is somewhat misguided. While weight gain occurred in trials, these gains are thought to be due to intracellular water retention in the muscles, which does not promote strength training, and levels will return to normal within twenty-eight days of the cessation of Cr maintenance (Mujika & Padilla., 1997).

One substance, caffeine, appears to cause a negative effect on the body's ability to absorb creatine effectively, which limits the supplement's absorption, as well as the individual's performance (Vandenberghe *et al.*, 1996). However, the amount of caffeine consumed in this study was relatively large due to hopes of finding an increased benefit from its combination with creatine. These results do not indicate that a minimal amount of caffeine consumed would produce the same result. In fact, most studies on creatine supplements had participants dilute Cr into a beverage containing caffeine.

Conversely, one approach that seems to cause a beneficial effect on creatine absorption involves the intake of carbohydrates 30 minutes after ingestion of the Cr supplement. In a control group just receiving the 20g Cr supplement, only 50% of subjects recorded a significant increase in total creatine (TCr), while the group ingesting both Cr and carbohydrates recorded 100% with a significant increase (Green, Hultman, Macdonald, Sewell, & Greenhaff., 1996).

While these results suggest an increase in available energy and resultant performance gains, the unchanged muscular ATP levels in both studies confirm the need for performance-driven studies to consider the practical implications of creatine loading. Some areas for study include types of activities that will allow performance enhancement, types of population groups and the degree to which each may benefit from Cr supplements, and potential side effects increased creatine concentrations may cause.

Research Findings on Creatine's Effects

One athletic event that may be positively affected by Cr supplementation is swimming. In looking at internationally competitive swimmers (ages 18 – 22), results showed that at 25, 50, and 100m intervals, no significant difference occurred in the times of the control versus the creatine group. This finding was thought to be attributable to the increase in body weight that accompanied the Cr group (Mujika, Chatard, Lacoste, Barale & Geyssant., 1996). However, in looking at U.S. Junior swimmers (ages 13 – 17), repetitive 100m sprint performance times showed a significant improvement in times (Grindstaff et al., 1997) with Cr supplements. The Cr group in this study did not experience a significant weight gain. In looking at both studies, it appears that a window exists in which specific activities can be performance-enhanced by Cr. While the age difference could explain a lack of significant weight gain, the improved times in the 100m repetitive sprints cannot be discounted.

Swimming is not the only event in which an apparent window exists for effective Cr use. In testing track athletes (sprinters & jumpers) during a 5-second jump test, no significant difference occurred in control vs. experimental groups. However, during a 45-second jump test, the intervals of 15 and 30 seconds showed a significant improvement in jumping height from the Cr group to the control (Bosco et al, 1997). An additional study on highly active males showed improved performance with regard to power maintenance on an ergometric cycle over a 10-second period (Balsom, Soderlund, Sojodin, & Ekblom., 1995). Yet another experiment revealed that repeated bouts of exercise over a 60-second period showed no benefits from Cr (Febbraio, Flanagan, Snow, Zhao, & Carey., 1995). In looking at activities over a longer period of time (700-meter running event lasting approximately 1minute 40 seconds), no significant improvement was shown for the Cr group when compared to the control (Terrillion, Kolkhorst, Dolgener, & Joslyn., 1997).

These studies illustrate a window of effectiveness from 10 to 60 seconds in certain exercises in highly trained athletes. This window has been shown to be somewhat larger for untrained athletes (Mujika & Padilla., 1997). However, when looking carefully at the studies discussed previously, some additional issues should be addressed before firm conclusions are drawn.

The age of the individuals involved in the experiments included a very limited distribution, usually no more than a 4 or 5 year range. Additionally, most of the subjects were ages 16-25. Apparent benefit of Cr supplements to a 16-year-old should not be assumed in a 30-year-old. Another limiting factor in the credibility of the discussed studies involves the extremely small sample sizes. The experimental groups discussed averaged only seven participants. Such a limited group, coupled with a brief duration of activity, allows for the higher probability that one or two participants having a good or bad day may mask a physiologic benefit or indicate an inaccurate one. When looking at data for specialized, highly trained athletes, no results exist in regard to performance in competition. It assumes a great deal to expect these laboratory results to transfer to the playing field.

Cause for Concern Among Youth

Whether or not creatine produces a substantial effect on training remains to be confirmed. However, a larger concern emerges with the growing number of high school students taking the substance without a clear understanding of the potential consequences. The only information readily available for a prospective creatine user comes from the same company that sells the product. Creatine is reported to be completely safe, but this conclusion has a limited scientific basis. While studies seem to show no short-term acute side effects of creatine use, long-term usage has not been studied, partially due to the newness of the product. Besides information on relative risks of the product, creatine manufacturing companies make it difficult to determine exactly how much creatine is contained in a serving. No serving sizes indicate how many grams are contained in a serving. It requires several metric conversions to determine the actual recommended amount of creatine. In some cases, the recommended daily dosage was 2 – 3 times the amount proven to be effective.

Another issue in teen-age creatine use involves the myth of proportionality. As indicated previously, the intake of more than 2 – 3 grams per day after an initial loading period does not increase blood creatine levels. Likewise, taking creatine for an extended period of time causes it to lose its effect on blood levels. This combination causes concern. For example, a teen-age male athlete starting creatine probably will notice weight and strength gains almost immediately. After five to six weeks, the strength and weight gains begin to plateau. If this athlete takes time to learn the scientifically recommended method to use the product, he will begin a 4-week cycling off period. In less than 14 days, most of the strength and weight gains have disappeared. At this point, what are the chances that the athlete will continue the recommended regimen and not restart the cycle for another 2 weeks? And if so, when he begins again, will he be more likely to disregard the initial directions and take an elevated amount for a longer period of time? Difficulties only arose when he stopped taking creatine, so taking a higher dosage for a longer period of time would seem logical. This course of logic should not seem surprising with a misinformed high school athlete looking for an edge to help him achieve his athletic goals.

Possible Side Effects

Research has not confirmed the dose-specific effects of creatine over time. No acute short-term effects occur other than cramping (Greenhaff, 1996), but no information exists regarding long-term use. Chronic consumption, a pattern to be expected with a product that loses the majority of its effectiveness at the point of cessation, has not yet been studied. Long-term use may place a heavy load on the liver and the kidneys, which could lead to problems later in life. Another physiological concern involves the fact that the body's production of creatine may cease if it becomes too used to having it supplied. Other concerns may eventually emerge as well. Lack of information about the long-term effects remains a cause for concern. With most drugs, costs and benefits can be weighed and an informed decision made regarding use – but not with creatine.

Prospects for Future Intervention

Schools represent a logical site for intervention. Athletes comprise the majority of creatine consumers at the high school level. An educational component could be designed to address this issue involving five different groups: coaches, athletic administration, school administration, parents, and students.

An educational course designed to discuss the unknowns of creatine would be ideal for coaches. It would be important to have accurate information available for coaching personnel who may be asked to give advice on supplementation. Many professional and collegiate teams have tried creatine and removed it from their training program. Showing these programs as examples of "success without supplements" would provide immediate buy-in with high school athletes. In addition, many colleges would be willing to provide such information since the added exposure could only benefit their athletic programs.

Educators, school administration, and athletic administration would be charged with designing the structure to bring this material to students and parents. A mandatory class offered once in fall and once in spring to all athletes, with a one-semester waiver provided to account for absences, could reach all participants. If students were interested in participating, they would attend. Making an educational course mandatory for athletes would seemingly cause no greater difficulty than the mandatory physicals that high school athletes already must receive before participation. While the idea of requiring athletes to maintain a good academic record for competition is readily accepted, we also should be concerned with the health of these same young people.

Recently, the International Olympic Committee (IOC), despite heavy lobbying from some in the medical fields, voted to continue to allow creatine as a form of dietary supplement for all competing athletes. Though the ban was not passed, the fact that the matter came to a vote represents a step in the right direction. News from other sports is not as promising. Currently, creatine is a legal supplement in every professional and collegiate sport. Consequently, it will be more difficult to convince any high school athletes whose goals include playing highly competitive sports that they should not take an apparently beneficial supplement currently legal in their area of competition. Until these policy changes occur on the olympic, collegiate, and professional levels, interventions at the high school level will be challenging.

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Early Childhood Caries Prevention Programs: Definitions, Recommendations, and Barriers

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Abstract

Despite health measures such as fluoridating public water supplies, the oral health status of children remains a serious public health concern. Early childhood caries (ECC), previously known as baby bottle tooth decay and nursing caries, comprises most of this population's dental health problems. Streptococcus mutans, a bacterium, causes ECC, therefore, making it an infectious disease. ECC primarily affects low socioeconomic status families, particularly immigrants and ethnic minorities. Several barriers to prevention exist, some more complex than others. Health educators play an important role in preventing ECC through program development and implementation. Components necessary for successful ECC prevention programs include 1) motivating primary care givers to engage in oral health promoting activities, 2) sponsoring community-wide events to advance knowledge of ECC, and 3) teaching prevention techniques.

Introduction

Improved dental services, coupled with the advent of fluoridated water in many U.S. cities, have played a major role in improving the oral health status for Americans. Such advances in public health reduced the incidence of oral diseases for the country as a whole. Despite these accomplishments, the oral health status of some individuals remains poor. Children represent a population of particular concern for poor oral health, mainly in the form of tooth decay. Populations of children at risk include those with low socioeconomic status, particularly immigrant families, and ethnic minorities (Weinstein, 1998).

Early childhood caries (ECC) pose a number of public health problems such as worsening of children's overall health status and high treatment costs per child. Dental caries in early life have long-term effects on children's health. Severe tooth decay promotes premature loss of deciduous teeth which leads to speech disorders and eating difficulties. Tooth decay impairs hard palate development and can affect unformed adult teeth. All of these conditions negatively affect self-concept (California Dental Association [CDA] online, 1998). Treating one child with ECC costs between $700 and $1,000. Treatment costs increase by $1,000 if hospitalization occurs (Weinstein, 1998).

Dental decay and its accompanying problems can easily be prevented, yet they persist over time. Dentists have acknowledged ECC as a health concern from the beginning of this century (Brown, 1998). In fact, preventing ECC remains a national priority as outlined in the Healthy People 2000 objectives (U.S. Department of Health and Human Services, 1996). Priority Area 2, which focuses on nutrition, and Priority Area 13, which addresses oral health, both list preventing ECC as an objective. Effective ECC prevention programs are essential to improving children's oral health. Before the problem of ECC can begin to be resolved, the vocabulary must be understood.

Definitions of Early Childhood Caries

Terms used to designate the appearance of tooth decay in children include nursing caries, nursing bottle caries, nursing bottle syndrome, nursing bottle mouth, bottle mouth, and baby bottle tooth decay (Von Burg, Sanders & Weddell, 1995). Early childhood caries replaced previous nomenclature because the term more accurately describes the condition. Former terms implied that only bottles contributed to tooth decay, but breast-feeding and sweetened pacifiers also promote decay (Mohan, Morse, O'Sullivan, & Tinanoff, 1998).

The bacterial species Streptococcus mutans (SM) causes ECC; thus, ECC is an infectious disease. Saliva produced by adults normally contains SM which adults then pass to children through everyday contact such as sharing utensils. Decay requires more than the presence of SM. Colonization is necessary to promote tooth decay. Several factors are needed for SM to colonize, including time, substrate (usually plaque), and the presence of tooth buds or teeth (Mohan et al., 1998).

Feeding practices which promote SM colonization and eventual ECC development involve giving bottles containing fermentable carbohydrates, sweetened pacifiers, or breast-feeding during nap time or overnight (Reisine & Douglass, 1998). Unique patterns of decay characterize ECC. Specifically, ECC affects upper incisors and molars (Bruerd & Jones, 1996).

The health community continues to debate the level and location of decay which technically constitutes ECC. Ismail (1998) proposes ECC be defined as "the occurrence of any sign of dental caries on any tooth surface during the first three years of life because a single carious lesion, in infants and toddlers, on any tooth surface must be considered a serious health problem" (p. 49).

Populations at Risk

ECC affect from 1 to 12% of American children. An overall percentage for the country is difficult to ascertain because data are limited concerning the oral health of children under age 5 (Von Burg et al., 1995). Risk for caries increases as a child ages beyond one year because tooth eruption increases as well (ADA on-line, 1998). Variance in prevalence relates directly to population composition, with higher percentages, up to 70%, occurring in populations with low-socioeconomic status (SES) (Weinstein, 1998). Populations with special dental health needs include Native Americans, immigrants, and ethnic minorities (Bruerd & Jones, 1996, Reisine & Douglass, 1998).

Low-SES individuals have limited access to dental care services and available services rarely provide reimbursement. Parents with low-SES "have more fatalistic beliefs about their health and have lower perceived need for health care, leading to less self-care and lower utilization of preventive health services" (Reisine & Douglass, 1998, p. 37). Because treatment options for these groups are limited, implementation of ECC prevention programs becomes vital. The following section explores key elements of successful programs.

Prevention Programs

Extensive community education programs require substantial time and resources to implement. Often these programs meet with limited success. However, if prevention program implementation occurs in communities with a high risk for ECC, such programs can provide at least short-term success (Ismail, 1998).

Because medical and other health personnel, including health educators, have more contact with children and their caregivers than do dental personnel, these professionals should be trained in ECC prevention (Weinstein, 1998).

For effective ECC prevention programs to exist, key components must form the foundation. Critical elements of successful ECC prevention programs involve community-wide education. These programs motivate primary caregivers to engage in self-care practices and preventive measures, and such programs encourage the use of preventive pharmacological agents such as fluoride.

One component of a successful ECC prevention program involves including the primary caregiver in promoting positive oral health practices. Health educators should have two goals in this aspect of the program. First, instruct caregivers on effective caries prevention techniques (Appendix 1). Second, encourage patient compliance with dentist appointments to bolster primary caregiver involvement (Weinstein, 1998).

Health educators also should include a variety of community-wide activities in their programs to enhance ECC prevention program success. Sample strategies include bulk-mailings, public service announcements, health fairs, smile contests, and workshops. Minimum topics include ECC prevention tips and community resources (Bruerd & Jones, 1996). Education efforts coupled with preventive medicine may further decrease the severity and incidence of ECC. Pharmacological agents such as fluoridated water, chlorhexidine varnishes, and medicinally treated pacifiers also work well to obstruct ECC formation (Ismail, 1998). For example, the American Dietetic Association "reaffirms that appropriate fluoride supplementation, through its beneficial effects on dental health, has an important, positive impact on [overall] health" (ADA online, 1994). Also, tooth varnishes reduced dental caries by 50% in one clinical study. As of yet, the effectiveness of treated pacifiers remains unknown because clinical trials have not been implemented in high-risk populations (Ismail, 1998).

Barriers to Prevention

Prevention programs, including ECC prevention programs, often must overcome several obstacles to achieve success. Main barriers to ECC prevention programs include a) under-representation of key health professionals and organizations, b) no clear definition of the problem, c) multi-disciplinary nature of the problem, d) under-reporting of cases, and e) maintaining parental participation.

Limited attention to ECC from dental and other health organizations constitutes one barrier to program effectiveness. Few public health dentistry and public health organizations have broached the topic of ECC. Obvious under-representation from prominent associations hinders program success (Ismail, 1998). Without a unified front, the battle against ECC will be difficult to win. One possible reason for the lack of participation by major health organizations may stem from the fact that a universal definition of ECC remains unclear. Additionally, this phenomenon exists as a problem in and of itself.

Because no shared vision exists regarding the definition of ECC, program planning and implementation become problematic (Ismail, 1998). Lack of shared vision can lead to the poverty cycle of program funding as explained by Green and Kreuter (1991). Poor planning leads to poor funding, consequently program quality suffers (Green & Kreuter, 1991).

The multi-disciplinary nature of ECC requires a comprehensive approach to prevention. Social, health, nutrition, and economic factors comprise ECC. Little cooperation between fields exists, thus misallocation of resources occurs. Sufficient funding is available, but funds often are spent inefficiently (Ismail, 1998).

Another barrier to ECC program success involves the fact that high-risk populations for ECC rarely seek early preventive dental care, so caries remain under-reported. As with poor planning due to discrepancies in terminology, funding and policies suffer without a clear knowledge about the extent of the problem (Weinstein, 1998).

Maintaining active parental participation remains one of the toughest hurdles to overcome. Parental experiences with dental care shape their beliefs about preventive dental measures. Thus, fatalistic beliefs concerning health must be

altered in order to effectively reach high-risk children before ECC occurs (Weinstein, 1998).

Implications for Health Education

Health educators can address several of the barriers to ECC prevention programs and therefore contribute to program success. Appendix 2 lists helpful Internet resources for use in effective ECC prevention programs. Areas in which health educators can have the greatest impact include encouraging participation by national organizations and health officials in ECC prevention campaigns, assisting with efficient allocation of resources, providing opportunities for ECC diagnoses, and dispelling myths surrounding oral health care in general.

To increase program success, health educators can bring together local public health officials and representatives from national organizations. Enlisting the support of college or university health departments also may contribute to ECC prevention program success. Having a recognizable sponsor lends credibility to the program and can help funding (Finnegan, Jr., Bracht, & Viswanath, 1989).

By encouraging discussion among and participation by national organizations, health educators can improve a second area of concern in ECC prevention programs: ineffective allocation of resources. With the interaction of different organizations, the potential for repetition of program content, and therefore the wasting of time and money, decreases.

A third area in which health educators can have a positive impact concerns the under-reporting of ECC. Health educators can incorporate ECC screenings as a component of prevention programs or even in general programs aimed at promoting oral health. Other potential locations for screenings include health fairs and public assistance program offices such as Women, Infants, and Children (WIC) program.

The final and most important area involves dispelling fatalistic beliefs held by parents concerning health issues. Motivating the primary caregiver to engage in preventive care remains the most significant factor in determining ECC program success (Ismail, 1998). By following this recommendation, health educators increase the likelihood of parental compliance with ECC prevention practices and therefore, overall program success.

Appendix 1.

Tips to Prevent ECC

(1) Wipe children's teeth and gums with a damp cloth after feedings. Begin tooth brushing upon appearance of first tooth.
(2) Never permit children to fall asleep with a bottle, sweetened pacifier, or nipple in their mouths. Should the child demand a bottle, fill it with clear water.
(3) Check local water supply for fluoride levels. If the levels are not sufficient, consider fluoride treatments.
(4) Begin dental visits between 6 and 12 months.
(5) Wean children from exclusive bottle or breast feeding to cups by 12 months.
(6) Parents: Brush and floss teeth regularly to prevent Streptococcus mutans from spreading to children.

Appendix 2.

ECC Internet Resources for Health Education

American Dental Association Online
(www.ada.org/consumer/radio/980210.html)
ECC fact sheet and video clip.

California Dental Association Online
(www.cda.org/public/cch2fs.html)
ECC and general oral health fact sheets.

Children's Dental Health Project Materials Available
(www.familiesusa.org/medicaid/chdent.htm)
ECC fact sheets, surveys, and studies.

The Dental Consumer Advisor
(www.toothinfo.com/facts.htm)
ECC and general oral health fact sheets.

National Institute of Dental and Craniofacial Research (National Institutes of Health)
(www.nidr.nih.gov.pubs/hmouth/menu.htm)
Complete oral care fact sheet including ECC prevention, cartoon.

Parenthood Web sponsored by the Centers for Disease Control and Prevention
(www.parenthoodweb.com/library/cdc_toothdecay.htm)
ECC fact sheet and additional parent resources.

Pediatric Dentistry "Just for KiDDS" by Dietmar A.J. Kennel, D.D.S.
(www.flash.net/~dkennel/bottle.htm)
Photographs of decayed teeth with discussion of ECC causes and prevention tips.

Texas Department of Health
(www.tdh.state.tx.us/dental/whitspt.htm)
Photographs of early and late stage decay.

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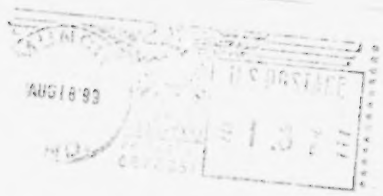

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